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STONE

July 4, 1932

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Vol. 91, No. 1, July 4, 1932. issue of STEEL, published weekly at Cleveland, O. Entered as second class matter at the post office, Cleveland, O., under the act of March 3, 1879. Subscription price U. S. $6 a year; single copies 25c. Canada $8.60. Foreign £2:6:0

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CONTENTS

July 4, 1932

THE WEEK IN PERSPECTIVE 9

The Voice of Industry 10
Pentup Steel Needs To Break Out Soon, if History Repeats 11
Corrigan, Newton Agreement Is Near 13
Steel Prices, Wages Deflated More Than in Other Industries 14
June Pig Iron Output in Sharp Drop 15
Personals 16
Obituary 18
Here and There in Industry 18
Mirrors of Motordom 19

EDITORIAL—Per Capita Analysis Shows Good Years Ahead 20
THE BUSINESS TREND 21

Ford Car Parts Are Welded in Automatic Machines 23
Speed Problem Overcome in Spiral Welding of Pipe 26
Recommends Dual Firing in Boiler Furnace Design 30
Revised Tentative Specifications for Gray Iron Castings 32
Making the Most of Methods and Materials 33
Progress in Steelmaking 35
New Equipment 36

MARKET REPORTS AND PRICES 39-56
CONSTRUCTION AND ENTERPRISE 57
WHERE-TO-BUY DEPARTMENT 59
ADVERTISERS' INDEX 74

STEEL is published every Monday by PENTON PUBLISHING CO., Penton Building, Cleveland, O. C. J. STARK, President; J. D. PEASE, Vice President; F. V. COLE, Secretary. Member, Audit Bureau of Circulations; Associated Business Papers Inc., and National Publishers Association. Branch Offices: New York, 220 Broadway; Chicago, Peoples Gas building; Pittsburgh, Oliver building; San Francisco, Alto building; Washington, National Press building; Cincinnati, Schmidt building; London, Caxton House, Westminster, S. W. 1; Berlin, Lichterfeld-West, Dahlmerstrasse 64a, Germany. Subscription in the United States, Cuba and Mexico $6 per year; in Canada $8.60; in Great Britain and European countries £2:8s.

Entered as second class matter at post office at Cleveland under the Act of March 3, 1879.

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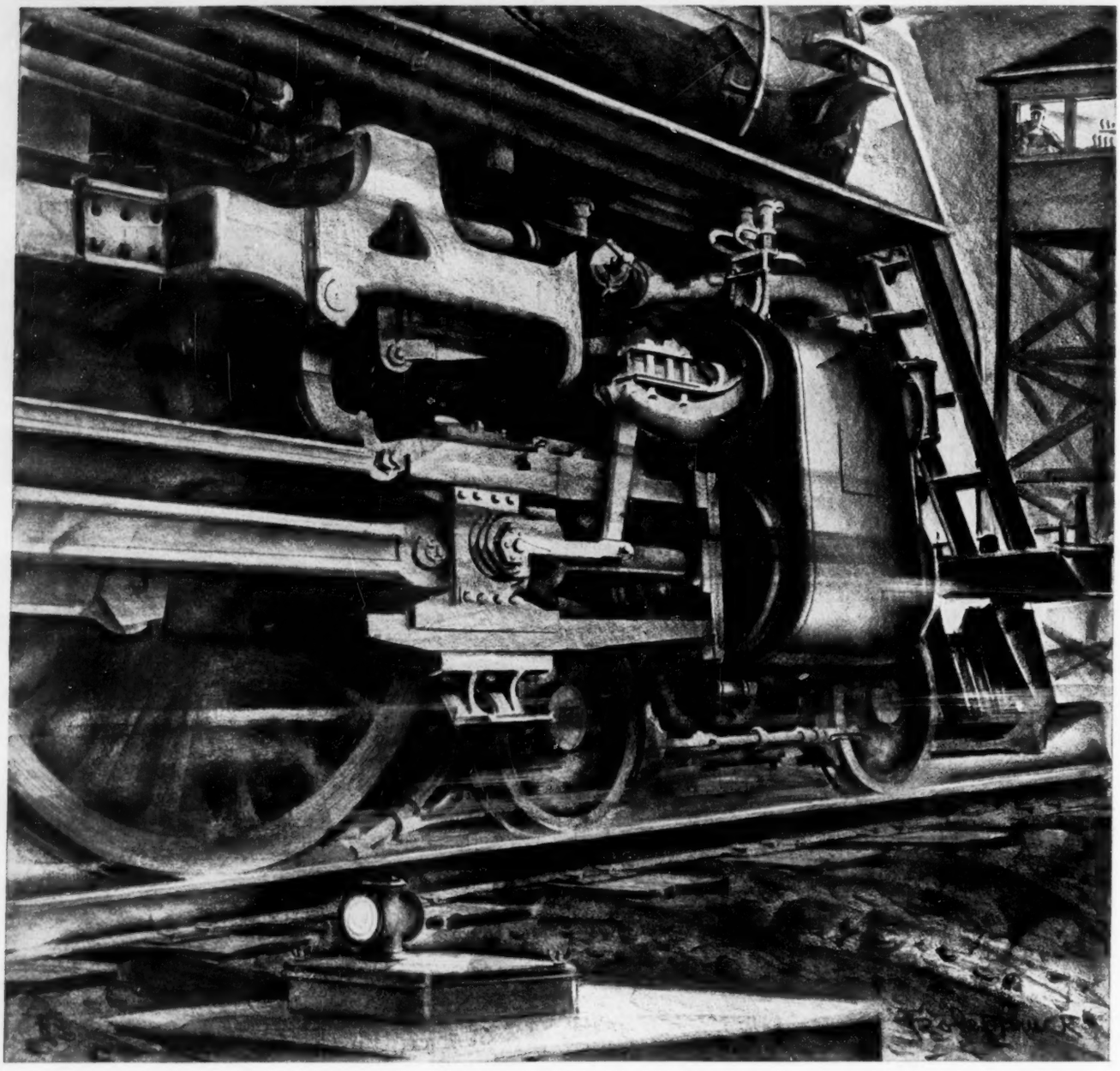

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208 South La Salle Street, Chicago, Illinois

Volume 91 Number 1

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

IF THE country is going back to buggies, corduroy roads, the pony express, log cabins and salt pork, the iron and steel industry is done for. It may as well draw its pumps, scuttle the ore fleet, dismiss watchmen and let nature reclaim blast furnace and rolling mill sites. Indeed, production of steel has reverted to the buggy era. Indicated at 295 pounds per person in 1932, it is no higher than in the 90's, when population was three-fifths of today, the automobile was a novelty, 10 stories constituted a tall building, life was less complicated—and less comfortable.

Rebound Is Proportionate to Depression

But the country will not take a retrograde step and demand for steel will come back, as it always has. Breaking the long-pull trend of production down to a per capita basis (p. 11), it is stimulating to note how rapidly subnormal conditions have been adjusted. The use of steel may be checked for a time, but ultimately it overcomes the deficiency and surges ahead. It is unthinkable that consumption 28 per cent of a normal mathematically accurate since 1900 is other than temporary.

Prolonging Independence Day Holiday

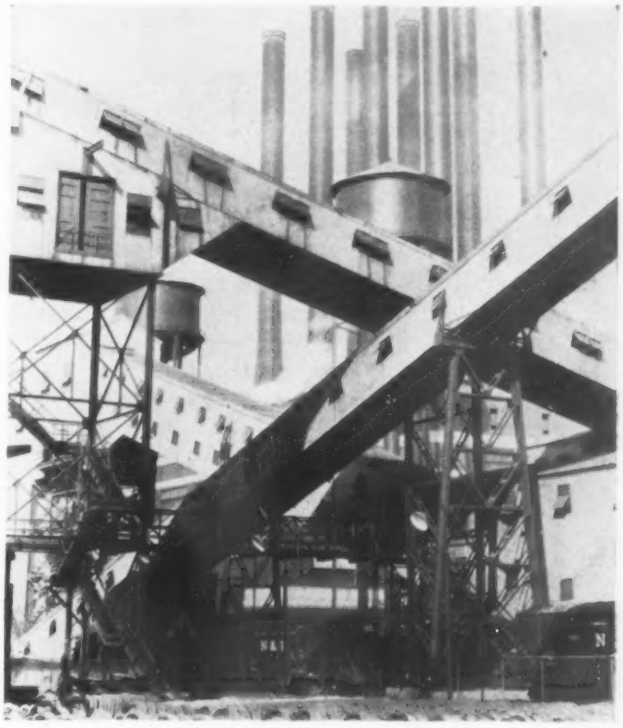
This correction, however, is not immediately at hand. Midsummer as usual has dried up consumers' requirements, and since July 4 falls on a Monday it supplies the occasion to some producers for staying down all week (p. 47). Last week, steelmaking operations averaged 14½ per cent; the holiday is repressing this week to 13. . . . This gait parallels pig iron in June, when the daily rate of 20,888 tons—17.3 per cent under May—engaged capacity at 14.2 per cent (p. 15). Only 48 stacks are active.

Semifinished or Ore, French Benefit

This loss of appetite by blast furnaces explains the stagnant condition of the Lake Superior iron ore industry at a time when the North African ore mines of the French are expectant. If the new British tariff discourages importation of semifinished steel from the Continent it must stimulate domestic production, the French reason (p. 13), and their African mines will benefit. . . . This tariff wall of Britain prompts a conference at Montreal (p. 14), whereby prior to the Imperial Economic Conference British steelmakers and Canadian consumers seek to synchronize their positions. . . . At Washington (p. 13), tariff investigations of finished steel, cast iron pipe and cutlery are under way.

West Coast Is More Foreign-Minded

Within the United States there is no settled policy on international trade. In the East, the federal government spurns the low bid of a German interest (p. 53) on wire rope. But at Seattle, which has enjoyed a moderately good



Gasoline makes Fords go, but coal makes Fords. Coal conveyors, power house stacks and water tower at Rouge plant of Ford Motor Co.

trade in scrap to Japan, the low bid of a French maker of cast iron pipe (p. 55) wins the business. . . . Through slow additions to its works, Japan has become 88 per cent self-contained in the matter of steel (p. 14), the department of commerce finds. . . . And Russia, pushing its metallurgical development, reports (p. 13) its May output of pig iron 84 per cent of its program, ingots 76, finished products 75.

Russia Good Customer for Germans, Poles

Even so, Russia continues to depend upon imports. Germany is negotiating for an additional 80,000 tons of steel to the soviets (p. 55), while Russian commitments with Polish steelworks now total 80,000 tons. Other important European steel news of the week is that the British, from behind their tariff wall, have reached out for a 26,000-ton bridge in Denmark and for a noteworthy structural contract in China. . . . The United States Steel Corp. continues to generate important news domestically through further shifts in personnel, retiring a vice president (p. 16) noted for his knowledge of raw materials.

Ford To Decide Last Half Auto Standing

From 1921 to 1929 automobile production moved forward in 3-year cycles, but the depression has decapitated this tradition. Another probable upset this year is a second half production exceeding the first (p. 19). The deciding factor, as usual, is Ford, now close to an assembly of 100,000 units monthly. For something radically new, Chrysler shortly will bear watching. . . . Automatic electric welding is the keystone of manufacture of the new Fords. One welder of unusual interest is a hydraulic unit for wheel hub shells (p. 23), having a capacity of 720 assemblies in 8 hours and requiring only one operator for four machines.

It's Speed in Welding Spiral Pipe

Automatic welding, of the electric resistance type, has also made a good record in the manufacture of spiral pipe from coiled strip (p. 26). One merit of the process is speed, 50 feet a minute being attainable. A portable type mill permits welding of pipe on the job. . . . Bronze welding (p. 33) was used recently to reclaim a fractured 8-ton, 8½-foot diameter cast steel crusher bowl. . . . With its flame-cutting and welding equipment, a Middle West structural steel fabricator (p. 33) has built up an automobile body die business of 1000 tons a month. . . . Two automobile supply interests will unite if negotiations (p. 13) between the Corrigan and Newton companies succeed.

Certificate Selling for Gray Iron

Climaxing several years of research, the gray iron branch of the foundry industry has completed its revision of specifications for gray iron castings (p. 32). Castings are classified into seven tensile groups, ranging from 20,000 to 60,000 pounds per square inch; tensile test bar sizes are increased from one to three to provide adequate design information pertaining to various sections. With provision for a certification plan, an orderly marketing of castings is expected.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

To the Editor:

Great sums of public funds, realized through the ready sale of tax exempt bonds, helped build the prosperity we enjoyed from 1922 to 1929. The continuous growth of outstanding federal and municipal bonds must some day have their reckoning through taxation. New York city about six months ago was unable to balance its budget, the bankers refusing to assist them until the budget was brought under control. This same situation developed in Chicago, Philadelphia, Detroit and other large and small municipalities.

This gives us a clear reason for the continued drop in stock market quotations. The stock market cannot possibly hold up without bank support. If the banks refuse to loan their funds for the purchase of stock and refuse to hold stocks or bonds in their portfolios which are not amply covered by margin, these stocks being allowed to drift eventually to the market without bidders, are sold with continued sacrifice until arriving at a point where they in no way reflect the true value of the companies they represent. Today the price of stocks reflects the country in bankruptcy.

This country will not recover from this depression until the stock markets again represent the fair value of stocks within themselves. It is apparent that there is an approximation of between $30,000,000,000 and $40,000,000,000 shrinkage in stock values under the actual valuation of these companies as reflected by their quick assets and net worth. Banking support of these stocks could soon re-establish these values, but banks will not lend themselves to this support until our governments take away the threat of an economic crisis by balancing budgets, doing away with paternalism, and adjusting themselves to the practice of strictest economy.

H. L. Braham President,
H. L. Braham & Co., Cleveland.

To the Editor:

Your readers may be interested in seeing the new Colorado Fuel & Iron Co. sticker, which is to be used on all correspondence, invoices, vouchers, etc. A copy is attached below.

A. M. Riddle, Jr.
The Colorado Fuel & Iron Co.,
Denver, Colo.

C-151

THE PROSPERITY of This Country is largely dependent on the purchases made, and wages paid, by the Railroad Companies. Therefore, we strongly urge that the Railroads be used whenever possible.

THE COLORADO FUEL AND IRON COMPANY

Pentup Steel Needs To Break Out Soon—if History Repeats

A RISE in steel production cannot be deferred much longer, if anything like the modern standard of living in this country is to be maintained. This is evident from the extreme contrast, since 1929, between per capita output and well-established needs for steel.

A drop in steel production generally is interpreted as meaning but one thing—a reduction in demand—but experience shows that in such periods actual requirements are being built up, becoming more and more insistent until it is imperative for the steel industry to make up the deficiency.

This, in the past, has carried steel output to new heights. The reaction is proportionate to the repression, as, first, much of the deficiency must be supplied, and, second, new, oncoming needs must be filled.

Each new decade since the beginning of steel manufacture has brought in larger and more varied uses for steel. The World war greatly inflated production for at least three years; the depression of 1921 forced it down sharply for one year; yet true to the ten-year rule, steel marched on, total output in 1920-1929 exceeding that in the preceding ten years, with all its stimulus of the war, by 27 per cent.

Even in such short spans as five years, the record of steel's steady growth is significant. Divide the half-century, 1880 to 1929, into groups of five years. Each group registers an increase in steel, with one exception.

On this shorter-term basis, the five years 1920-1924, with the obstacle of the depression in 1921, were insufficient to overcome the war years 1915-1919, though they fell short by less than 10 per cent.

Temporary Losses Overcome

Then came 1925-1929 with a surge in production to make up for this temporary failure. The output in this period was 37 per cent larger than that embracing the 1921 depression, and 24 per cent greater than that which included the war.

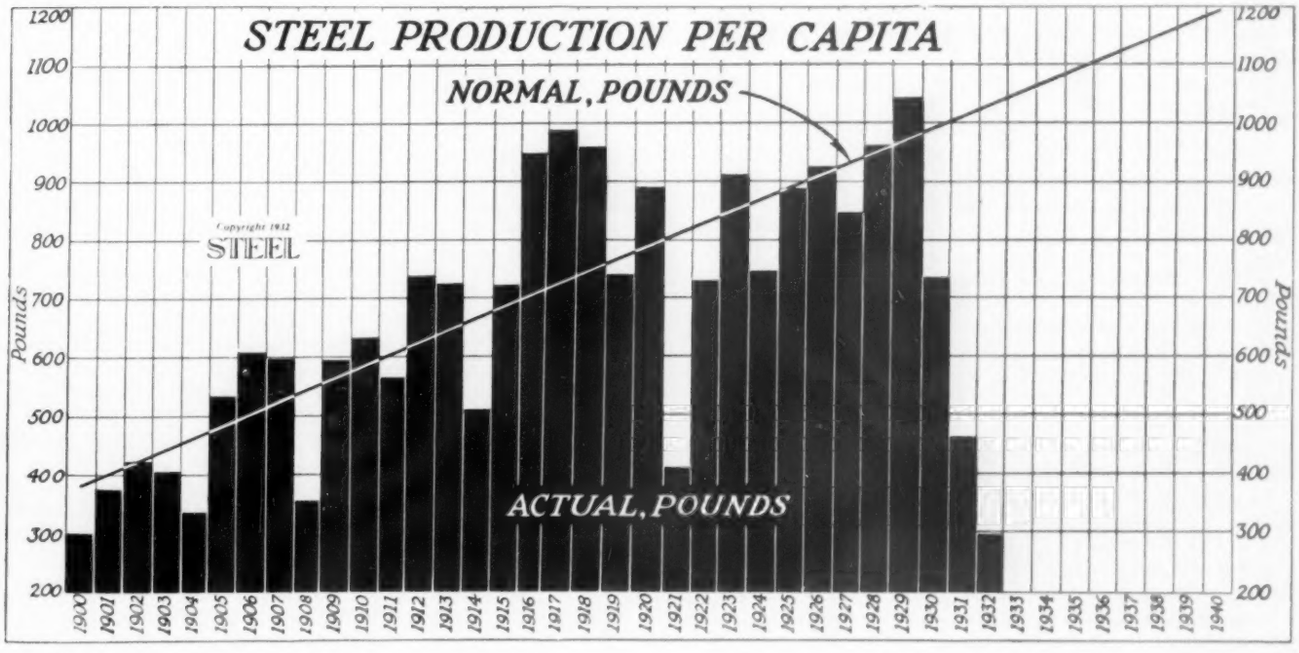
This, as well as the entire record of steel making heretofore, is evidence that temporary losses are soon overcome; that requirements are firmly established; that production did not go permanently into reverse with the close of 1929.

How far is per capita steelmaking off its normal course? Farther than at any previous time. It is farther below the normal line for the years 1930, 1931 and 1932 than it was above the line in 1916, 1917 and 1918. Never before was there so great a deficiency in steel output, either of a temporary or extended character, in relation to normal needs.

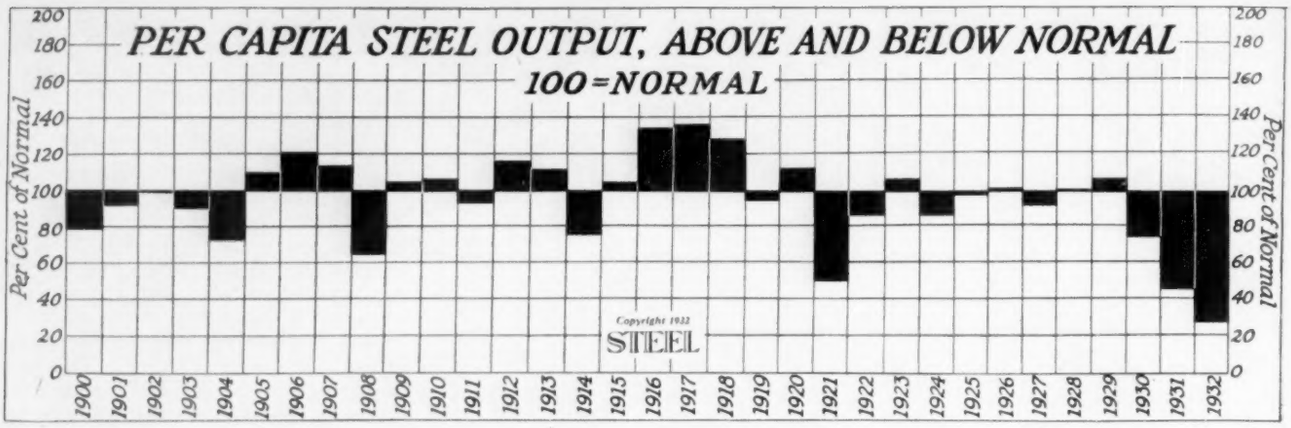
While steelmakers for the present have difficulty in selling what little they produce, the country is steadily consuming its steel, failing to replace it, draining the existing supply, through wear and tear on manufactured products. It has been doing so since 1929—excessively so in 1931 and 1932. If past experience is any indicator of the future, in this way an unparalleled demand is being amassed, to be released soon upon the steel industry.

Per capita production figures—practically equivalent to per capita consumption in this country—reflect the shortage more significantly than do gross tonnages. The per capita output of steel ingots and castings increased at an average rate of a little more than 20 pounds a year between 1900 and 1930. From this a normal trend line has been constructed in accordance with accepted mathematical formula.

Normal per capita production for 1930 was 995 pounds, while the actual figure was 731 pounds. Normal for 1931 was 1015.4 pounds; actual, 465. Normal for 1932 is 1035.7 pounds; actual, estimated for the full year on the basis of output in the first five months, is 295. In other words, normal for the three years is 3046.1



STEEL production in the United States never before was so far below normal as it has been since 1929. This is represented in the chart, in terms of per capita output of steel ingots and castings, with the amount for 1932 estimated on the basis of output in the first five months. Per capita production for the five years preceding 1930 in the aggregate was 99.1 per cent of normal. Therefore, it cannot be said that in 1930, 1931 and 1932 we have paid a penalty for excessive production in those prior years. Rather, the excessively low output since 1929 foreshadows substantial improvement. And past experience portrayed on the chart indicates that the improvement cannot be postponed much longer. The pent-up, unsatisfied demand for steel in all its forms is much greater than generally appreciated



NORMAL per capita steel production—ingots and castings—has been calculated according to accepted mathematical formula, and is here represented as a horizontal line, 100. Actual per capita output is represented by the perpendiculars, in their per cent of normal. That for 1932 has been estimated on the basis of output in the first five months. Production has been below normal in 17 years, and above normal in 16, since 1899. In the three years—1930, 1931 and 1932—it is farther from normal than in any other three-year period. Even the World war failed to throw it as far out of balance as has the present depression. But, rather than to cause distrust of the future, this excessively low production should inspire confidence. In every important consuming line demand for replenishment is insistent

pounds; actual, 1491—a deficit of 1555.1 pounds.

This in itself is a larger per capita amount than ever produced in any one year. By comparison with 1040 pounds, actual in 1929, it may be noted that it would take the steel industry one and one-half years operating at the peak rate as in 1929 to make an amount equal to this deficit.

"Normal" calls for 1056.1 pounds in 1933, and 1076.4 pounds in 1934. Suppose that by the end of 1932 a definite improvement should set in, and that events in the remainder of this five-year period should so shape themselves that steel production would carry on the five-year gain. Then, at least three and one-half years' normal output would have to be attained in two. During the war four years' normal production was made in three.

Benefit in Long Run

It is too much to expect, even should the steel industry have the necessary capacity; but it is a fair conclusion that presently the year-and-a-half deficit, combined with new normal requirements, will call for action, and action will be more pronounced than if no deficit existed. In the long run, and over the next few years, the steel industry will surely benefit to some extent in making amends for the present slump. This is proved by many instances of like character in the past.

In the 33 years, 1900-1932, output per person has been above normal in 16 years, and below in 17. In only seven years has it been within five points of normal. There is a difference in these comparisons between the actual output in pounds, and its percentage relation to normal. For example, 1040 pounds produced in 1929 was the highest for any year on record, though it was only 6.7 points above normal for that year; whereas, 950 pounds in 1916 was 33.8 points above normal for that year. The normal line, plotted from actual experience, is constantly ascending.

To find a figure as low as 295 pounds per capita—the estimated actual output for 1932—one must go back to the years before 1900. However, in 1900 it was 300 pounds. Population in that year was only 75,995,000. For the year 1932, the census bureau has just reported a population of 124,822,000. This means that the country has been trying to get along with the same quantity of steel for the individual as it did in the days before the automobile, the skyscraper, and the myriad of other modern usages for steel—and when population was little more than half of today.

If per capita output had been 300 pounds in 1929, when the population was 121,500,000, total steel would have been only 16,272,321 gross tons, instead of what it actually was—56,433,473 tons. The difference, 40,161,152 tons, represents merely the increase in requirements for the same number of people in one year. The modern era's insatiable needs for steel are reflected in the fact that between 1900 and 1929 population increased 59 per cent, and per capita production, 246 per cent.

Former Recoveries Fairly Rapid

Low points in per capita output mark general business depressions with unerring accuracy, and the recoveries from depressions for steel heretofore have been fairly rapid. Reference to the accompanying chart "Steel Production Per Capita" will show how output is a series of advances and declines, the great majority of them of comparatively short duration. The present instance is the first in more than 50 years when output has dropped for three consecutive years.

In only seven years since 1900 has output been very far below normal, and these include 1930, 1931 and 1932. Note how quickly in the past steel has pulled out of the rut. From a practically normal figure in 1902, output dropped to 71.9 per cent of normal in 1904. Immediately there followed three years above normal. Then a drop to

Per Capita Steel Output, Actual and Normal

(Steel ingots and castings)

	Actual (pounds)	Normal (pounds)	Per cent actual of normal
1900	300	384.4	78.0
1901	375	404.8	92.6
1902	422	425.1	99.3
1903	402	445.5	90.2
1904	335	465.9	71.9
1905	533	486.2	109.6
1906	611	506.6	120.6
1907	599	526.9	113.7
1908	353	547.2	64.5
1909	592	567.6	104.3
1910	634	588.0	107.8
1911	565	608.3	92.8
1912	736	628.7	117.0
1913	725	649.0	111.7
1914	509	669.4	76.0
1915	724	689.7	105.0
1916	950	710.1	133.8
1917	987	730.4	135.1
1918	961	750.8	128.0
1919	739	771.1	95.8
1920	887	791.5	112.1
1921	409	811.8	50.4
1922	726	832.2	87.2
1923	911	852.5	106.8
1924	746	872.9	85.5
1925	881	893.2	98.6
1926	924	913.6	101.1
1927	848	933.9	90.8
1928	962	954.3	100.8
1929	1040	974.6	106.7
1930	731	995.0	73.4
1931	465	1015.4	45.7
1932*	295	1035.7	28.4
1933	.....	1056.1	.....
1934	.....	1076.4	.....
1935	.....	1096.8	.....
1936	.....	1117.1	.....
1937	.....	1137.5	.....
1938	.....	1157.8	.....
1939	.....	1178.2	.....
1940	.....	1198.5	.....

*Annual rate based on first 5 months.

64.5 per cent in the depression year 1908. This was followed by two years above normal; then by a slight recession, and two more above normal.

In 1914 it dropped again to 76 per cent. The war came on, and with it four years of production above normal. In 1921 output fell sharply to 50.4 per cent of normal. The year 1922 lifted it to 87.2 per cent, and 1923 to 106.8 per cent.

When production declined to 73.4 per cent in 1930 it was at first assumed that this was the natural reaction from a long period of excessive output. In reality, output for the five years immediately preceding 1930 was 99.1 per cent of normal.

This normal line is significant; being based entirely on actual output from 1900 to 1929, inclusive. It is the regression line, or line of least squares, used by mathematicians to show the long range trend of an irregular series of perpendiculars—in this instance per capita production.

Actual Close to Theoretical

A similar line for gross tonnage was plotted by Col. Leonard P. Ayres, vice president, Cleveland Trust Co., Cleveland, in 1921. Besides showing the normal trend of steel output over the preceding 25 years, when extended the line indicated 55,900,000 tons as normal for 1929. The actual output in that year was 56,433,473 tons. Actual in the intervening period also fell very close to theoretical normal.

A chart, similarly prepared, for gross tonnages of steel ingots and castings, brought up to date, and a chart for gross tonnages of pig iron, both showing actual and normal trends, were presented in STEEL, May 20, page 11.

The natural course for steel unquestionably still is upward. The immoderate depth of the depression in production is the surest sign of impending improvement. In subsequent issues STEEL will show how requirements have accumulated in various consuming lines.

Business Up, Adds Engineers

Demand for electrical resistance welding equipment has expanded sufficiently to warrant the Federal Machine & Welder Co., Warren, O., enlarging its engineering staff, states M. L. Eckman, research engineer. New additions to the staff include Arthur Mallett, formerly chief engineer, Thomson-Gibb Electric Welding Co., Bay City, Mich., and Clyde Coates, formerly designing engineer, Taylor-Winfield Corp., Warren.

Welland Tube Mill On

Page-Hersey Tubes Ltd., Welland, Ont., is to resume on its lapwelded mill this week, running day and night shifts.

Corrigan, Newton Agreement Is Near

CLEVELAND—Negotiations for an affiliation of the Corrigan, McKinney Steel Co., Cleveland, and the Newton Steel Co., with headquarters at Detroit and mills at Monroe, Mich., and Newton Falls, O., are understood to be progressing, and an announcement is expected soon.

The Corrigan, McKinney company is a large producer of sheet bars. The Newton company manufactures sheets, especially for the automobile trade, and is a consumer of sheet bars. The two companies thus are complementary. During the season of navigation, bars move by water from Cleveland to Monroe.

Any union of the two companies, it is understood, would be more on the basis of a community of interest than an outright merger, and the identities would be retained. The Monroe mill of the Newton company is one of the most modern, having been completed in March, 1930. The capacity of the Monroe mill, like the Newton Falls mill, is 200,000 tons of sheets annually. Nothing has matured, but plans were laid for converting the Newton Falls plant into a tin plate mill.

The Business Week In Washington

EXPERTS of the customs service, both here and abroad, are now working on the dumping investigation of iron and steel products instigated by complaints lodged by the American Iron and Steel institute. Some months will elapse before hearings are held, presumably in Washington.

The commission has formally ordered an investigation into the cost of producing cast iron pipe at home and abroad.

An investigation of the cutlery situation also has been initiated in response to a senate resolution.

□ □ □

Internal revenue bureau of the treasury has granted the Inland Steel Co., Chicago, refunds totaling $478,887.17 for over-assessment of income and profits taxes for 1921-24 inclusive.

□ □ □

Import quotas on iron and steel in France were extended from July 1, according to word received by the department of commerce.

□ □ □

Fabricators of ornamental iron, bronze and wire have been authorized by the federal trade commission to hold a trade practice conference to eliminate certain practices prevalent in the industry.

□ □ □

New York Central railroad has applied to the interstate commerce commission for a new basis of rates for shipment of merchandise in containers, to meet truck competition.

Sheet Mill Wage Scale Down; Puddling Rate Off

A reduction of 15 per cent in the basic wage scale for sheet mill employes, and 10½ per cent in the basic scale for tin mill workers became effective July 1, by agreement for the ensuing 12 months, signed by the Western Association of Sheet Steel Manufacturers and the Amalgamated Association of Iron, Steel and Tin Workers, at Pittsburgh, last week. Average sheet sales prices for May and June have not yet been determined, so that actual wages for sheet and tin mill workers in July and August, on the new scale, have not been announced.

The basic bar mill wage scale was reaffirmed for a year, as previously reported in STEEL. Following this the bimonthly settlement last week showed that bar iron wages for July and August will be based on a 1.50c card, giving the puddlers $9.30 per ton, instead of $10.05 in May and June. An average sales price for bar iron at 1.50c is the lowest since the March-April period, 1922, when it was at 1.50c, giving the puddlers $7.63 per ton on the basic wage scale then in effect. Following are bar iron price averages for the periods designated:

	1932	1931	1930
Jan.-Feb.	1.65c	1.70c	1.95c
March-April	1.65c	1.70c	1.90c
May-June	1.50c	1.70c	1.90c
July-Aug.	.....	1.70c	1.80c
Sept.-Oct.	.....	1.65c	1.80c
Nov.-Dec.	.....	1.65c	1.70c
Yearly average	.....	1.66c	1.84c

Russia at 84% in Pig Iron

In the first 20 days of May, Russian production of pig iron was 350,000 tons, 84 per cent of planned output, states USSR chamber of commerce. Production of steel in the same period was 320,000 tons or 76 per cent of the program, and of rolled products 217,000 tons or 75 per cent.

Tariff To Aid African Ore?

Washington—If the British, as a result of their new tariff, curtail their imports of semifinished steel from the Continent they will be heavier purchasers of iron ore from French North Africa, the French be-

lieve, according to Assistant Commercial Attache Finger, at Paris, to the department of commerce.

Japan 88% Self-Contained

Domestic production of iron and steel in Japan in 1931 met 88.5 per cent of the nation's requirements, compared with 82.8 per cent in 1930 and 72.5 per cent in 1929, states Assistant Commercial Attache Dowd, at Tokyo, in a report to the department of commerce.

In 1931, the government works supplied 663,000 tons, private plants 886,000 tons, imports 202,000 tons. A domestic company producing 35,000 tons or more annually is paid a subsidy, the total thus paid in 1928 being 2,422,000 yen ($1,200,000).

Worcester Castings Drop

Worcester, Mass.—Foundry production dropped to 672,106 pounds in May, according to the monthly report of the Foundry council, Worcester chamber of commerce. This compares with 829,534 pounds in April and 1,480,000 pounds in May, 1931.

Prices and Wages in Steel Deflated More Than in Other Industries

THAT liquidation in the steel industry has exceeded that in other industries is indicated by an analysis of steel prices and wages just issued by the National Association of Flat Rolled Steel Manufacturers.

"Comparing all commodity prices with composite steel prices from the 1920 peak to the present," states the report, "we see how the steel industry has been excessively deflated and can readily understand how 19 leading steel companies recorded a total loss for the first quarter of 1932 amounting to $29,892,078.

"Perhaps more than any other language the accompanying charts establish the conclusion that steel prices cannot continue at the present level without causing dangerous financial embarrassment to the steel industry, a condition bordering upon destitution for those employed in it and the dangerous growth of propaganda and doctrines with which the established order is being assailed today."

According to George H. Charls, president of the association, "the long decline in steel prices that started in 1923 reveals the underlying cause of the present distress in the basic steel industry. In a period when the leaders of industry are anxiously gaging the least degree of rise and fall in the barometer of trends and doing their best to give some sort of employment to all their men, does it not behoove each and every thoughtful buyer and seller to know these facts and apply them not only to his particular problem but to the problems of all, as his contribution to the solution of a national economic dilemma?"

Not Yet Ready with Steel Houses on Mass Scale

While plans for mass production of low-priced steel houses are proceeding under the direction of an organization termed General Houses Inc., 205 East Forty-second street, New York, the steel interests scheduled to produce parts are not yet ready for large scale production.

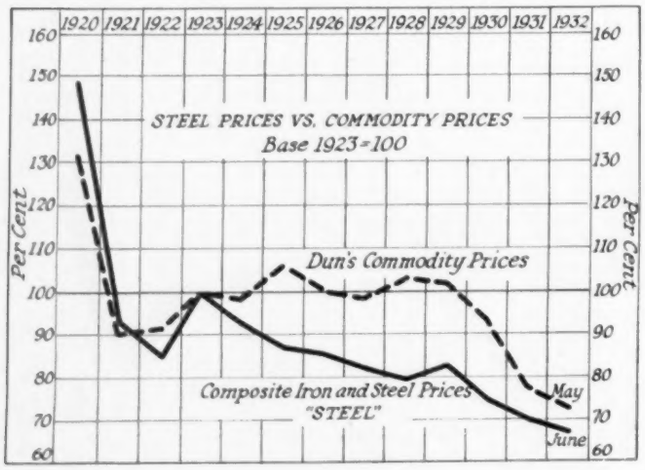
Co-operating with General Houses in the program are the Pullman Car & Mfg. Corp., Concrete Engineering Co., General Electric Co., American Radiator & Standard Sanitary Corp., Pittsburgh Plate Glass Co., Container Corp. of America and Thomas E. Edison Inc.

The objective is a one-story house of pressed steel parts, five or six rooms, flat roof, completely equipped with electric refrigeration, to sell for $3500 or less.

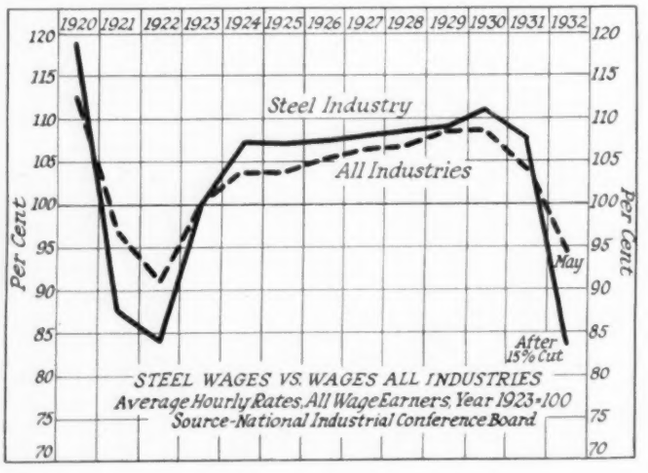
To Talk Canadian Tariff

Toronto, Ont.—A conference has been scheduled in Montreal, Que., July 5, between British steel manufacturers headed by A. J. Grant, president, National Federation of Iron and Steel Manufacturers, and representatives of Canadian steel producers.

This conference precedes the imperial economic conference at Ottawa, Ont., beginning July 15, and



Composite STEEL PRICES declined
54.9 per cent from 1920 to 1932 (June)
33.7 per cent from 1923 to 1932 (June)
Dun's COMMODITY PRICES declined
45.5 per cent from 1920 to 1932 (May)
28.8 per cent from 1923 to 1932 (May)


1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932
Steel Industry
All Industries
Per Cent
May
After 15% Cut
STEEL WAGES VS. WAGES ALL INDUSTRIES
Average Hourly Rates, All Wage Earners, Year 1923=100
Source-National Industrial Conference Board

Average hourly rates, ALL INDUSTRIES, declined
16.1 per cent from 1920 to 1932 (May)
13.6 per cent from 1930 to 1932 (May)
Average hourly rates, STEEL, declined
29.5 per cent from 1920 to 1932 (May)
24.4 per cent from 1930 to 1932 (May)

That deflation of prices and wages in the steel industry has exceeded the average deflation of prices and wages in other industries is shown in the above charts, which were prepared by the statistical bureau of the National Association of Flat Rolled Steel Manufacturers, 511 Terminal Tower building, Cleveland. In the case of steel prices, deflation from the post-war peak began two years before that of the average of all commodity prices

will discuss means of adjusting the Canadian tariff in order to divert as much business as possible to British producers.

Canadian Output of Steel, Pig Iron Off in May

Toronto, Ont. — Production of steel ingots and direct steel castings in May, in Canada, was 29,239 tons, 19 per cent below April. For 1932 to date, total output of steel is 162,370 tons, against 406,272 tons a year ago.

May output of pig iron in Canada was 13,339 tons, compared with 16,898 tons in April. Two blast furnaces remained active all month.

Output of ferroalloys in May was 1132 tons, against 2184 tons in April. The 5-month total for ferroalloys is 7865 tons, compared with 20,144 tons a year ago.

Bids Must Include Tax

Washington—Prospective bidders on government work are being advised by all contracting offices that bids submitted must include any federal tax applicable to the material on which bids are submitted. Such notice is being attached to proposal blanks.

Algoma Will Start Mill

Algoma Steel Corp., Saulte Ste. Marie, Ont., will resume on its merchant mill shortly, following the receipt of orders from the Ford Motor Co. of Canada.

Gets Drawback on Scrap

Washington—Great Lakes division of the National Steel Corp., at Detroit, has been allowed a drawback on sheets, strip, bars and billets made from foreign scrap.

JUNE IRON PRODUCTION

	No. in blast last day of month June	May	Total tonnage made Merchant	Nonmerchant
Ohio	12	14	12,831	166,065
Pennsylvania	12	14	1,000	133,797
Alabama	4	4	21,740	12,965
Illinois	6	6	37,310	42,630
New York	3	4	19,361	20,198
Colorado	0	1		
Indiana	5	5		
Maryland	2	2	212	98,146
Virginia	0	0		
Wisconsin	0	0		
Kentucky	0	0		
Massachusetts	0	0		
Tennessee	0	0	1,435	26,661
Utah	1	1		
West Va.	1	1		
Michigan	2	2		
Minnesota	0	0	.....	22,688
Missouri	0	0		
New Jersey	0	0		
Spiegel and ferro — all states	....	....	1,859	7,753
Total	48	54	95,748	530,903

Iron Output in Sharp Drop as Six More Furnaces Go Out

REFLECTING the shrinking in operating blast furnace capacity, five furnaces in May and six more in June, the June output of coke pig iron suffered a sharp loss. From all indications, the bottom will not be reached for another month or possibly two. On June 30, only 48 of the country's 297 potential stacks were active, as against 54 on May 31.

Beginning with last month, iron production dropped to levels lower than any in nearly 30 years, or since figures have been compiled on a monthly basis. From estimations, however, it appears that the June output was the lowest since December, 1896.

Total production in June was 626,651 gross tons, which, compared with the 783,769 tons of the preceding month, was a decrease of 157,118 tons, or 20 per cent. May, of course, was a one-day longer month than June. Production in June one year ago was 1,637,998 tons; two years ago it was 2,934,508 tons; in the record year of 1929 it was 3,715,104 tons.

AVERAGE DAILY PRODUCTION

	1932	1931	1930	1929
Jan.	31,336	55,337	91,573	110,742
Feb.	33,122	61,114	101,640	114,942
Mar.	31,194	65,448	104,930	119,622
Apr.	28,524	66,986	106,371	122,106
May	25,282	64,355	104,564	125,753
June	20,888	54,599	97,817	123,837
July	.....	47,170	85,110	122,016
Aug.	.....	41,264	81,455	120,845
Sept.	.....	38,947	75,893	116,548
Oct.	.....	37,831	69,851	115,747
Nov.	.....	36,727	62,182	106,081
Dec.	.....	31,625	53,732	91,513
Av.	28,379	50,035	86,141	115,808

Average daily production for June was 20,888 tons, a loss of 4394 tons, or 17.3 per cent, from the 25,282-ton rate of the month before. The rate one year ago was 54,599 tons; two years ago, 97,817 tons.

For the six-month period of 1932 ended in June, total iron output was only 5,165,156 gross tons, or only 53.5 per cent of the 1931 half-year total of 11,098,122 tons. The corresponding figure for 1930 was 18,304,614 tons; and for the record year of 1929 it was 21,637,537 tons. Thus the 1932 half year total represents only 23.8 per cent of the 1929 six-months output.

Relating production to capacity, the operating rate for June was 14.2 per cent, against 17.9 per cent in May; 37.9 per cent for June, 1931; 69.3 per cent for June, 1930; and 88.5 per cent for June, 1929. In the accompanying table, all operating rates for 1932 have been revised on the basis of the capacity of 51,589,175 gross tons of coke pig iron and ferroalloys as of Dec. 31, 1931, as announced recently by the American Iron and Steel institute.

During June, 4 furnaces resumed operations and 10 were blown out or banked. Of the merchant class, 2 were blown in and 1 was blown out, making a net loss of 1 unit. Of the nonmerchant or steelworks class, 2 were blown in and 9 were made inactive, with a net loss of 7 units.

MONTHLY PRODUCTION

	1932	1931	1930
Jan.	971,437	1,715,443	2,838,751
Feb.	960,550	1,711,192	2,845,937
Mar.	967,015	2,028,906	3,252,822
April	855,734	2,009,582	3,191,119
May	783,769	1,995,001	3,241,477
June	626,651	1,637,998	2,934,508
Tot. 6 mcs.	5,165,156	11,098,122	18,304,614
July	.....	1,462,270	2,638,441
Aug.	.....	1,279,205	2,525,105
Sept.	.....	1,168,436	2,276,781
Oct.	.....	1,172,781	2,165,374
Nov.	.....	1,101,820	1,865,458
Dec.	.....	980,377	1,665,715
Total	.....	18,263,011	31,441,488

Furnaces resuming operations in June were: In Ohio: Jisco, Jackson Iron & Steel Co.; Ohio Nos. 2 and 4, Carnegie Steel Co.; Toledo A, Toledo Furnace Co.

Furnaces blown out or banked were: In Ohio: Massillon, Republic Steel Corp.; Campbell A, Youngstown Sheet & Tube Co.; Lorain No. 2, National Tube Co.; Ohio Nos. 2 and 4 Carnegie Steel Co.; Portsmouth, Wheeling Steel Corp. In Pennsylvania: Neville Island, Davison Coke & Iron Co.; Carrie No. 7, Carnegie Steel Co. In New York; Lackawanna F, Bethlehem Steel Co. In Colorado: One Minnequa, Colorado Fuel & Iron Co.

RATE OF OPERATION

(Relation of Production to Capacity)

	1932[1]	1931[2]	1930[3]	1929[4]
January	22.1	38.4	65.0	79.0
February	23.4	42.5	72.1	82.2
March	22.0	45.4	74.5	85.5
April	20.2	46.5	75.4	87.4
May	17.9	44.7	74.2	89.8
June	14.2	37.9	69.3	88.5
July	.....	32.7	60.3	87.2
August	.....	28.7	57.8	86.4
September	.....	27.0	53.8	83.3
October	.....	26.3	49.6	82.6
November	.....	25.5	44.1	75.8
December	.....	22.0	38.1	65.5

[1]Based on capacity of 51,598,175 gross tons Dec. 31, 1931; [2]on capacity of 52,515,875 tons; [3]on capacity of 51,490,680 tons; [4]on capacity of 51,069,395 tons. Capacities by American Iron and Steel institute.

Industrial Men in the Day's News

George G. Thorp, President, Illinois Steel Co.

ON a sand dune fringing the southern shore of Lake Michigan he reared an industrial empire—Gary.

NATIVE of Pittsburgh, graduate of Wisconsin, his first steel connection was with the Joliet division of Illinois.

FOR 27 years he has been vice president of Illinois, and now at 64 he has before him six years as president.

GEORGE G. THORP, who has succeeded Eugene J. Buffington, retired, as president of the Illinois Steel Co., Chicago, as noted in STEEL for June 27, has been identified with the steel industry for the past 40 years.

He was born in Pittsburgh in 1868 and is a graduate of the University of Wisconsin. Following a fellowship in mechanical engineering at that institution, he entered the steel industry in 1892 as engineer of tests at the North works of the Illinois Steel Co. Later he was transferred to the Joliet works of this company as assistant master mechanic. Subsequently he accepted a position as chief engineer of the Colorado Fuel & Iron Co., returning three years later to Joliet to become general superintendent.

Mr. Thorp joined the Carnegie Steel Co. in 1901, serving as general superintendent of the Clairton works until 1905. He returned to Chicago in that year to become vice president of the Illinois Steel Co. and the Indiana Steel Co., taking charge of the design, construction and operation of the Gary steel works. He held the position of vice president until his recent succession to the presidency.

Mr. Thorp is a member of the American Iron and Steel institute, the American Society of Mechanical Engineers, and is a director of the First National bank, Chicago.

EDWIN E. ELLIS, now attached to the staff of the United States Steel Corp. in charge of special mineralogical research, will become a vice president of the Corporation Aug. 1, and will succeed David G. Kerr, who retires at that time under the Steel corporation's pension plan.

Mr. Ellis is a graduate of Northwestern university, Evanston, Ill. He did graduate work in geology at the University of Wisconsin, afterward serving in the Wisconsin and United States geological surveys. In 1906 he became associated with the Oliver Iron Mining Co., a Corporation subsidiary, at Duluth. Two years later he was transferred to the Tennessee Coal, Iron & Railroad Co. In 1925 he assumed his present post with the Corporation. Mr. Ellis also is president of the Universal Exploration Co., which developed Corporation zinc ore properties in Tennessee. Mr. Kerr, who is recognized as an authority on the production and assembly of raw materials for the iron and steel industry, for the past 24 years has been a vice president of the Corporation in charge of iron ore, coal and limestone. He was graduated from Lehigh university in 1884 and immediately entered the service of the Carnegie Steel Co. at its Edgar Thomson works. Eight years later he was made superintendent of blast furnaces there. In another eight years, or in 1900, he went into the general offices of the Carnegie company in charge of iron ore and other raw materials. His election as a vice president of the Corporation, to succeed James Gayley, followed in December, 1908.

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James R. Mills, who as noted in STEEL for June 27 succeeded Charles C. Cluff as district manager of sales at New York for the Carnegie Steel Co., Illinois Steel Co. and Tennessee Coal, Iron & Railroad Co. July 1, has been district manager of sales at Cleveland for these companies since 1914.

Mr. Mills is a native of Sewickley, Pa. After attending Ohio State university and Allegheny college, graduating from the latter, he entered business with McAllister-Mohler & Co., Columbus, O. In 1895-6 he was with the Euclid Avenue National bank, Cleveland, following which he was representative at Pittsburgh for two years of *Iron Trade Review*, now STEEL. On July 1, 1898, he embarked upon an association with the Carnegie Steel Co. which has continued ever since. A period in the sales department at Pittsburgh was followed by service at St. Louis as assistant district manager of sales. Then for seven years he was district manager at New Orleans, going to Cleveland in 1914 in a similar responsibility.

Deeply interested in civic matters at Cleveland, Mr. Mills has been trustee of the Welfare Federation, St. Luke's hospital and the Associated Charities, and in the five years ended

last January he was a member of the board of education. He is a trustee of Allegheny college and has been a director of the Guardian Trust Co., Cleveland .

F. C. Hardie, who succeeded Mr. Mills at Cleveland July 1, has been assistant manager of sales for the Chicago district for the Illinois Steel Co. since Jan. 1, 1931. A native of Evanston, Ill., he was in Dartmouth college when the war broke out. Leaving college in 1917, he was honored with his degree in 1918. In 1920 he went with the Jones & Laughlin Steel Corp., spending three and one half years in various positions, chiefly the open-hearth department. In 1923 he entered the open-hearth department of the Duquesne plant of the Carnegie Steel Co. Later he was transferred to the

F. C. Hardie

Made district sales manager at Cleveland for Carnegie, Illinois and Tennessee companies

sales department, was in the Cincinnati office of the company, then resident representative at Indianapolis, and went with the Illinois company in April, 1929.

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Charles T. Miley, personnel director, Carpenter Steel Co., Reading, Pa., has been elected chairman of the Eastern Pennsylvania Industrial conference.

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Paul G. Leoni, president, William H. Muller & Co., New York, sailed June 25 on a 4-week business trip to Europe.

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James A. Farrell, retired president of the United States Steel Corp., New York, has been elected a director of the chamber of commerce of the United States, Washington.

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Taylor H. Beech, formerly in a sales capacity at Pittsburgh for the Carpenter Steel Co. and Midvale Co., has been appointed district sales representative at Pittsburgh for the National Drawn Steel Co., East Liverpool, O.

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E. R. Wegener has resigned as president and general manager of the Detroit Forging Co., Detroit, a post he has held the past four and one half years. Previously, he was associated with the Ford Motor Co. in the steel buying division.

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R. E. Sweeney, for several years connected with the New York sales office of the United States Pipe & Foundry Co., Burlington, N. J., was transferred to Buffalo as manager of the company's office opened in that territory July 1.

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Thomas W. Wilbor, formerly associated with the Stanley Works, New Britain, Conn., hot and cold strip division, more recently with the New York office, has joined the sales force of William H. Leonori & Co. Inc., New York, representatives of the Griffin Mfg. Co., Erie, Pa.

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Walter E. Meub, secretary and treasurer, Youngstown Sheet & Tube Co., Youngstown, O., has succeeded to the duties of William J. Morris, recently promoted from vice president to president of the Continental Supply Co., St. Louis, pipe distributing subsidiary of the Sheet & Tube company.

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A. W. Thompson, vice-president, Fairbanks, Morse & Co., Beloit, Wis., in charge of manufacturing, resigned July 1 and is succeeded as general manager of the Beloit works by Alan E. Ashcraft. Mr. Thompson joined the company in 1920 after a long affiliation with George A. Just Co., Westinghouse, Church, Kerr & Co., and General Electric Co. He expects to take a long rest before re-entering active work.

Mr. Ashcraft, a graduate of Cornell university in 1903, immediately became connected with Fairbanks-Morse in Beloit. Later he was placed in charge of the scale works at St. Johnsbury, Vt., from which point he now returns to Beloit.

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Frank H. Crockard, since 1918 president of the Woodward Iron Co., Woodward, Ala., on July 1 became consulting engineer of the company, the change being made in the interest of economy. Mr. Crockard, who is 59, early in his career was associated with the National Tube Co., Tennessee Coal, Iron & Railroad Co. and Nova Scotia Steel & Coal Co., and as president of the latter company during the war period supplied shrapnel, railroad cars and ships to the Canadian and English armies.

A. H. Woodward, who has been chairman of the board since 1918, when Mr. Crockard succeeded him as president, will act both as chairman and president. Mr. Woodward, who is 56, has been with the Woodward company since 1899.

Halts Lower Pipe Rates

Washington—Interstate commerce commission has suspended until Jan. 19 operation of certain railroad schedules proposing to establish reduced carload rates on cast iron pipe and fittings from Cincinnati, Coshocton, Jackson, and Newcomerstown, O., and Everson and and Scottdale, Pa., to destinations in

James R. Mills

Newly-appointed district sales manager at New York for Carnegie, Illinois and Tennessee companies

central freight association and Illinois territories, which are less than the scale prescribed in docket No. 17,000, Part S.

Carboloy Tool Prices Cut

Prices of Carboloy cemented carbide tools were reduced June 30 by the Carboloy Co. Inc., Detroit, this being the first reduction since Sept. 1, 1930, and affecting all tools of any design, size or quantity. The new prices are based on a sliding scale, according to the weight of Carboloy metal in any given tool.

Ferro from Canada, Not Chile

An importation of 650 tons of ferromanganese from Canada in April was erroneously credited to Chile in STEEL for May 30, page 17.

Obituaries » » »

IRA O. Jones, 49, assistant superintendent, Wisconsin Steel Co., South Chicago, Ill died June 27 at his home there. Mr. Jones had been connected with the International Harvester Co. and its affiliates since his graduation from Cornell university in 1906.

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James Barrett, 66, for 40 years with the sales staff of the Worthington Pump & Machinery Corp., New York, died June 22.

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Martin H. Matheson, 43, formerly general manager, J. W. Murray Mfg. Co., sheet metal fabricator, Elizabeth, N. J., died June 22.

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H. W. Geller, 63, pioneer hardware man of St. Louis, president of the Geller, Ward & Hasner Co. and for 19 years with the Simmons Hardware Co., died recently.

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William Rowan Jr., for many years secretary and treasurer of the Morton Mfg. Co., manufacturer of drawcut machine tools and finished machine keys, Muskegon Heights, Mich., died June 14.

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William A. Slack, president Torchweld Equipment Co., Chicago, a director of the American Welding society and former president of the International Acetylene association, died at Chicago June 21. He was 57.

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Robert Martindell, 64, sales manager, American Forging & Socket Co., Pontiac, Mich., died June 21. He had been with the company since 1925 and previously held similar positions with eastern textile and metal manufacturing concerns.

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William E. Poole, 69, formerly general superintendent, New York Insulated Wire Co., Wallingford, Conn., who retired from active service in May, died June 25. He was born in West Bridgewater, Mass., and was active in various business and civic enterprises.

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W. J. Posen, 41, recently secretary of the Ohio Iron & Metal Co., Chicago, dealer in iron and steel scrap, died in Los Angeles June 25. He had been identified with the Ohio company for 25 years, serving as secretary for about ten years.

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John S. McCormick, 67, president and director, J. S. McCormick Co., Pittsburgh, maker of foundry equipment, died in an automobile accident at Harmarville, Pa., June 25.

Mr. McCormick was a prominent figure in Pittsburgh church and club circles and was a member of the Duquesne, University, Oakmont Country and Fox Chapel clubs, of Pittsburgh. He belonged to the American Foundrymen's and Pittsburgh Foundrymen's associations.

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Robert B. Williamson, 59, engineer in charge of alternating current design, Allis-Chalmers Mfg. Co., Milwaukee, died June 26. He was a graduate of and later an instructor in Lehigh university, and joined Allis-Chalmers 27 years ago. Since 1910, when he was given charge of the department, he designed some of the largest power units in the world. While an instructor at Lehigh, in collaboration with Prof. W. S. Franklin, he wrote the textbook, "Alternating Currents," which has been a standard text in engineering colleges for many years.

Here and There In Industry

TULSA Steel Mills Inc., Tulsa, Okla., has leased former plant of the Tulsa Rolling Mills Inc., Sand Springs, Okla., and has started rolling reinforcing bars. It is planned to light the open-hearth furnace within 60 days. Frank Long, Tulsa, is president and L. W. Conroy, formerly with the Sheffield Steel Corp., Kansas City, Mo., and originally with the Tulsa Rolling Mills Inc., is vice president and general manager.

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Harry Benjamin Equipment Co., St. Louis, dealer in steel and iron scrap, rails and contractors' equipment, has moved its offices from 3147 Locust street to the St. Louis Mart building. Frederick Fuld is president.

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Watson Holding Corp., Jamestown, N. Y., has bought the assets of the Watson Mfg. Co. for $90,000 cash and assumes $231,000 in mortgages. The sale has been confirmed by the federal court. The company manufactures metal specialties.

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Champion Wire & Iron Works, Louisville, Ky., J. E. Zimmerman secretary, plans to enlarge its welding department to make possible production of parts formerly contracted to other makers. This is a move to provide employment to all its shop force.

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Hillside Fluor Spar Mines, Chicago, has withdrawn, effective July 2, from the Oglebay, Norton & Co., Cleveland, selling agency for fluorspar, and hereafter will handle sales and correspondence from its Chicago office, 38 South Dearborn street.

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Fitzgerald Mfg. Co., Torrington, Conn., has formed a Canadian branch, Canadian Fitzgerald Ltd., with P. F. Fitzgerald president and M. D. Fitzgerald vice president. A plant has been established at 721 King street West, Toronto, Ont., for the manufacture of electrical appliances.

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R. L. Batteiger & Co., Widener building, Philadelphia, have been appointed exclusive sales agents in Eastern territory for the Thomasville Stone & Lime Co., York, Pa. Products of this company include blast furnace flux, open-hearth furnace flux, cupola flux, burned lime and limestone for other purposes. This company's product is low in silica.

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Erie Malleable Iron Co., Erie, Pa., has been placed in receivership by order of United States district court at Pittsburgh. A. W. Mitchell, Erie, and S. Watts Bowker, New York, were named receivers. The company is estimated to have inventories worth $450,000, accounts receivable of about $110,000 and obligations of $877,500. The plant at Erie and physical assets are valued at $1,700,000.

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Mattson Wire & Mfg. Co., Joliet, Ill., has been bought by the Keystone Steel & Wire Co., Peoria, Ill. Harry I. Mattson has been president of the Joliet company, which has specialized in the manufacture of snow, ornamental and poultry fencing. The plant will be operated by the new owner under the same name as formerly. Capitalization has been increased from $44,000 to $100,000.

Mexican Steel to Guatemala

Guatemala is becoming a large market for Mexican iron and steel products, according to a report by the ministry of industry, commerce and labor, Mexico City, showing that in 1931 Mexico exported to Guatemala 954,788 kilograms (9422 gross tons) of structural material, 876,840 kilograms of beaten and drawn iron and steel, and 450,151 kilograms of nails and other products.

New England Opens Plants

Many New England machine and metalworking plants are distributing New England vacation booklets and urging customers to visit their plants. Among them are Brown & Sharpe Mfg. Co., Providence, R. I.; Ashton Valve Co., Cambridge, Mass.; National Acme Co., Windsor, Vt., and Glenwood Range Co., Taunton, Mass.

MIRRORS OF MOTORDOM

DETROIT

FROM 1921 to 1929 automobile production moved upward in 3-year cycles. That is, 1921, 1922 and 1923 showed progressive gains; 1924 failed to equal 1923 but 1925 was a year of recovery and 1926 set a new high; 1927 slipped under 1926 but 1928 recovered and 1929 scaled a new peak.

By this logic, 1930 should have inaugurated a new cycle, culminating in 1932. It did, but the drift has been down, not up. It may be a reflection of the automobile industry's importance to steel that steel ingot production since 1921 has moved identically with automobiles.

Thus is one theory of the automobile industry washed overboard. Another in danger this year is that the first half of the year is the lush production period. In the first decade in which the department of commerce has compiled official production statistics—beginning with 1921—the first half exceeded the last half in seven years.

Official statistics for May place passenger car and truck output in the United States at 185,149 units, highest since August, 1931. Rating June the same as May, a first half total of about 875,000 units is indicated.

Ford Last Half to Top First

It must be remembered that Ford contributed nothing substantial to this total until May, and it seems certain that Ford output in the last half year will be measurably greater than in the first half. At present, Ford still is on the under side of 5000 units a day, 5 days a week, for the four and eight combined.

On some models, Ford dealers can make instant deliveries, and there appears to be a desire by Ford to hold operations evenly. A daily average of 5000 units a day, or about 100,000 a month, for the last half, may be a little high, but a slight recovery in the general business situation in the fall may offset the present uncertainty.

If Ford were to assemble 600,000 units in the last half, this would leave the rest of the industry 275,000 units to equal the first half. Chevrolet tentatively has scheduled 30,000 units for July, 25,000 for August and 20,000 for September, completing its run on the 1932 model. This would dispose of 75,000 units.

Plymouth, DeSoto Strong

For the remaining 200,000 units there is the rest of the industry to look to, but only Plymouth and DeSoto are now performing in anything like normal fashion. In the week ended June 25 DeSoto dealers sold 2008 cars, a 10 per cent increase over the best previous week this year and double the rate of a year ago. From Jan. 1 to June 25, DeSoto dealers show an improvement in deliveries 72 per cent over the corresponding period of a year ago.

Having achieved noteworthy success with the DeSoto and Plymouth lines the Chrysler organization may be expected to apply similar force to Chrysler and Dodge. For the latter line, as previously related, a new four is ready. When the new series Chryslers are put out radical advances comparable to those of Plymouth and DeSoto in the past year are probable.

Willys has its advanced 1932 line now ready, including a new six, a new eight and a new Knight, featuring automatic starting, slanting windshield and more streamlining than on any previous Willys series. This interest still has its 1900-pound car on the drafting board. With the return of John N. Willys to active control, a swing by him around the circuit to pep up dealers may be expected.

Most of the General Motors units other than Chevrolet can be considered out of production until the 1933 lines are ready, and a start on these hinges entirely upon the general business situation. In some cities Cadillac is now trying to move holdover 1931 models. The new light car which General Motors contemplates—probably a six with unusual power for its weight and probably to be built at Pontiac—should help production in the last half.

Auburn's price reductions are accomplishing these results: Putting more cars on the street—which is an advertisement, decreasing unit costs of production; increasing business for its service stations. At the new low levels Auburn would appear to be losing money, but no more than if it continued on a higher price and lower sales basis.

A new type of automobile developed by Edwin C. Juergens, of Detroit, mounts a modified airplane propeller in front, properly guarded and belt driven. With transmission and driveshaft omitted, small wheels and low clearance are possible, and a speed of 100 miles per hour is claimed to be no strain. But the propeller noise even at low speeds is comparable to that of a plane.

New Trucks by Dodge, G. M. C.

Dodge division of Chrysler is building 6-wheel trucks in 1½ and 2-ton sizes . . . . General Motors at Pontiac is assembling a 2 to 3-ton truck, which at $475 is the lowest-price commercial vehicle ever offered by it . . . . Hartley Machine Co., Owosso, Mich., has built for Ford a machine to finish and polish steering wheels; it weighs 26 tons, is 30 feet long 8 feet high, 4 feet wide, has a capacity of 120 wheels per hour . . . . Automobiles owned throughout the world at the end of 1931 totaled 35,263,397, a decrease of 1.5 per cent from the 35,805,632 at the close of 1930, according to the department of commerce.

EDITORIAL

Per Capita Analysis Shows Good Years Ahead

ALL manufacturers of metal products are groping for light on the future of their businesses. At the present time many of them are being exposed to dire predictions as to what is in store for industry during the next few years. It is no secret that in certain quarters the opinion exists that conditions as bad as those of today will prevail for a long time.

It is beyond the power of anyone to state with any degree of certainty when conditions will improve. Considering the long duration of the depression to date and in view of the trend of business sentiment in previous times of stress, it is likely that at this stage the voice of pessimism is louder than that of studied common sense. Certainly the experience of the past three years has made men cautious and suspicious of favorable signs until they have been proved. Under the circumstances it would not be surprising if in many eyes the outlook appears blacker than is warranted by the facts.

We believe that a safe and sane antidote against the state of mind resulting from unrelieved absorption in today's difficulties may be found in contemplating the market for material, equipment, supplies and services that has accumulated during this depression. To do this effectively it is only necessary to take one's eyes from the immediate situation and to view in broad perspective the relation of output to the minimum requirements of the nation.

Unit Consumption of Steel Is Reliable Index of Industrial Activity

The most appropriate unit of measure for this purpose is the annual per capita requirement of steel ingots and castings. The number of pounds of steel consumed by each person in a year is a good barometer of industrial activity. A high per capita consumption of steel usually connotes a high rate of operations not only in steelworks and rolling mills but also in fabricating, treating and finishing shops and in all manufacturing establishments in which the products are preponderantly of steel. Thus the per capita use of steel is an index of the condition of a large sector of industry.

For this reason the study presented in the article beginning on page 11 of this issue will bear close scrutiny. Remembering that in the United States steel consumption is practically on a par with steel production, it is interesting to note the deviations of actual per capita consumption from the regression or normal line.

Since 1900 the years of marked low demand were 1904, 1908, 1914, 1921, 1930, 1931 and 1932. The deficiency of 1904 was restored by excesses in the next three years. The lean year of 1908 was followed by excesses in four of the following five years. Four years of high consumption followed the low point of 1914, but in three of these years the war influence was paramount. The uncertain deviations from 1919 to 1924 may be ascribed to the nation's struggle to restore the balance of consumption disturbed by the war. From 1925 to 1928, inclusive, steel use clung closely to normal and in 1929 a small excess appeared. In 1930, 1931 and 1932 to date a deficiency equal to 18 months of normal output has accumulated.

Deficiency of Present Subnormal Period Must Be Made Good in Future

Had the unprecedented low consumption of the last two and one-half years been preceded by several years of abnormally high per capita demand, the deficiency might logically be considered a corrective for earlier excesses, just as the subnormal year of 1921 was an offset to part of the overages of the war years. However, the current period of restricted use follows five years of near-to-normal demand. Is it not apparent, therefore, that the present lag of production and consumption below normal requirements must be made up in the future?

To those who may question the reliability of the normal line shown on page 11, let it be said that it is purely a mathematical device for charting the experience of the past and projecting it into the future. In 1921, in the darkest hour of a severe depression, this publication presented a similar line for total steel output. It indicated the then unbelievable production of 55,900,000 tons as normal for 1929. Many well informed individuals declared the figure was fantastically high, yet actual output in 1929 exceeded the calculated normal by 500,000 tons!

As was the case in 1921, the normal now indicated for the future may appear to be beyond reasonable hope. But in the eight years from now until 1940 the normal will be exceeded not once but several times.

This conclusion, derived here from a mathematical approach, also can be supported by detailed data on the dammed up demand for steel. This corroborative evidence will be presented in forthcoming issues.

Meanwhile, do not be misled by those who say that the future of industry is hopeless. They cannot see the forest because of the trees.

THE BUSINESS TREND

Business Unimpressed As Commodity Prices Firm

IF BUSINESS were not so befuddled by numerous uncertainties, it would be giving more attention to the present resistance of commodity prices to the downward trend. Fisher's wholesale commodity price index advanced slightly for the first time since March. Several other commodity price barometers have shown gains in two consecutive weeks.

Unfortunately this evidence is not conclusive enough to warrant much hope that the trend has turned. Thus far increases are limited to certain fuels, a few food products and building materials. Grains and textiles continue to recede and other basic commodities for the moment are about stationary. In spite of the fact that similar resistance in price barometers in the past have aroused futile hope for a change, the current evidence of strength should not be ignored.

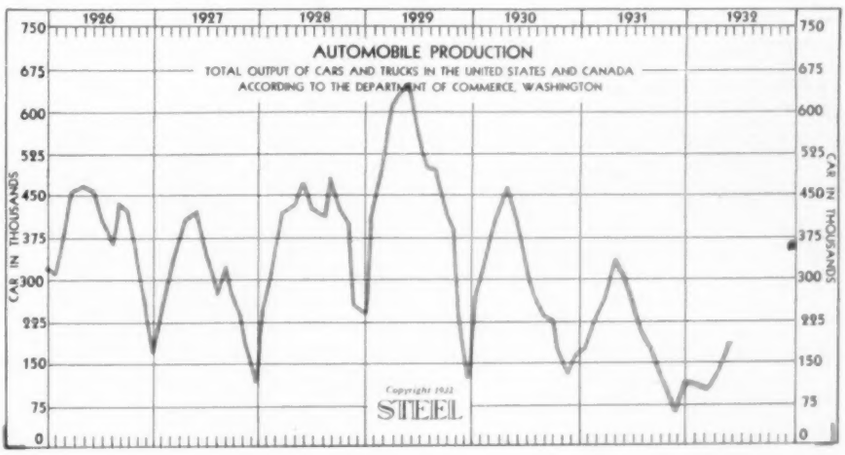
A somewhat new note in the credit situation was introduced early in the week by the formal suggestion by Owen D. Young's banking and industrial committee that business adopt the general use of trade acceptances to finance sales.

A trade acceptance is not a new device. It is really a draft drawn on the buyer by the seller to cover the goods purchased. When signed, or "accepted" in writing by the buyer and endorsed by the seller the draft becomes prime two-name commercial paper. If the credit standing of the buyer and seller is satisfactory, the instrument is negotiable, suitable for bank investment and by law is eligible for rediscount with Federal Reserve banks.

Urge Trade Acceptances as Substitute For Open Book Accounts

In the opinion of the Young committee, the use of trade acceptances instead of open book accounts would benefit buyer and seller, would lead to greater and more efficient use of bank credit, would afford banks a more liquid form of short-term paper and in the end would help to stimulate production and to increase employment. It is believed that if adopted widely, the plan, which was first suggested by Irenee Du Pont, might serve as a practical and sound substitute for credit inflation.

Suspensions of banks rose to 42 for the week, due largely to the closing of small institutions in and near Chicago. Wrangling over the relief bill at Washington, the inconclusive outcome of deliberations at Lausanne and speculation as to what the Democrats may do or not do at Chicago all served to confuse the outlook for business. Part of the prevailing nervousness probably will not subside until the politicians return to Washington and congress has adjourned.

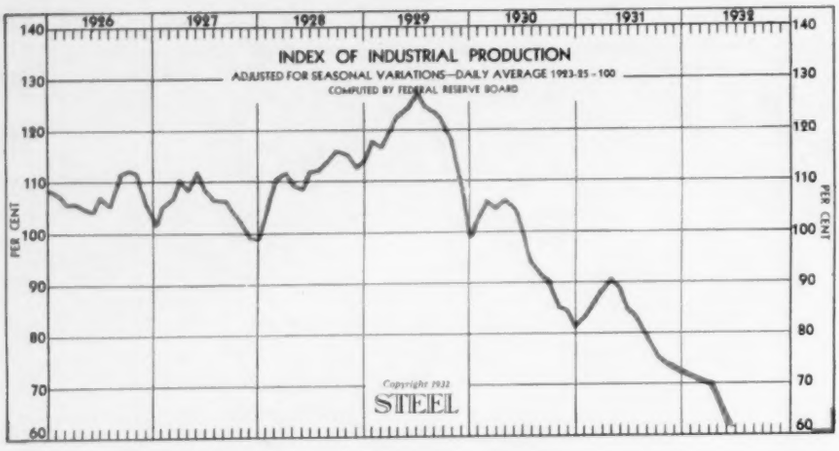


1932

May 193,370
April 155,136
March.. ..127,277
Feb. 122,895
Jan. 123,075

1931

May 329,901
April 354,098
March 289,398
Feb. 229,811
Jan. 178,344



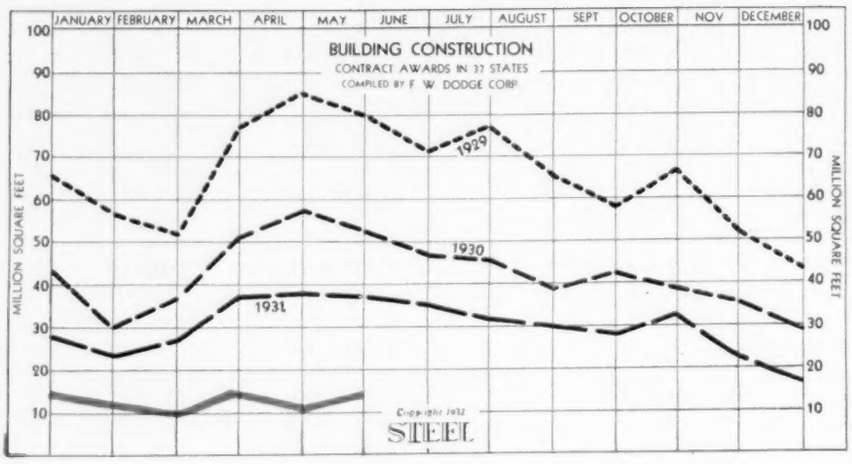
May, 1932	61
April, 1932	64
May, 1931	87

Industrial Production Index Continues Downward Trend

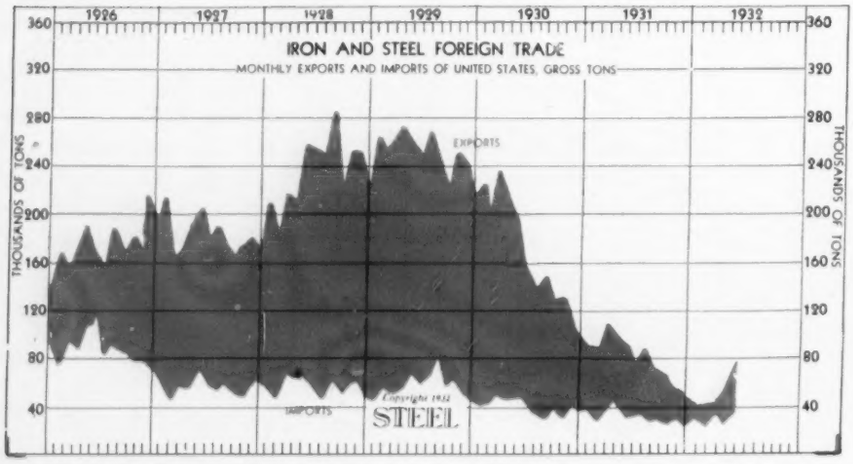
The Federal Reserve board's index of industrial production continues to fail to show signs of recovery. The index for May was down three points to 61 from the revised report for April. A year ago the index dropped from 90 to 87 for May. Among the component parts of the index, manufactures was down one point to 60 with adjustment for seasonal variation. Building construction dropped from 27 to 26 in value of contracts awarded.

Building Awards Up in May; Valuations Down 52 Per Cent

Building awards gained nearly two million square feet in May, according to the report of the F. W. Dodge Corp. Awards in 37 eastern states involved 15,742,200 square feet in May as compared with 13,886,600 in April. The valuation of construction contracts awarded in May totaled $146,221,200 as compared with $306,079,100 in the same month last year, a decline of 52 per cent. Industrial work accounted for 8,898,600 square feet of the current total.



	Square Feet
May, 1932	15,742,200
April, 1932	13,886,600
May, 1931	38,940,800



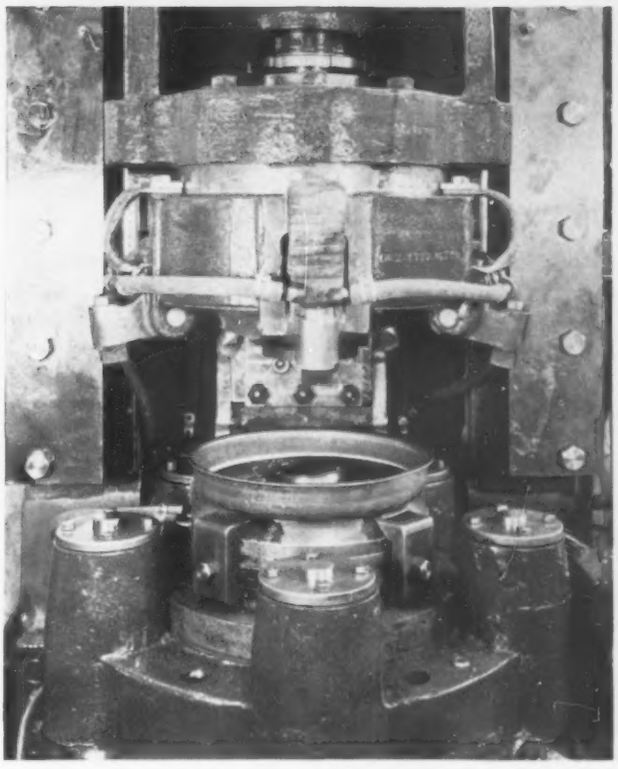
Exports	Tons	Imports	
May, 1932	80,477	May, 1932	39,751
April, 1932	58,118	April, 1932	36,339
May, 1931	95,046	May, 1931	37,176

Iron and Steel Export Trade Gains Sharply

With the exporting of 45,000 tons of scrap, principally to Japan, exports of iron and steel products registered an increase from 58,118 tons in April to 80,477 tons in May. This represents the largest volume of exports since July, 1931. According to the department of commerce, imports of iron and steel in May at 39,751 gross tons increased slightly over the 36,339 tons of April. The slight recovery made in imports was due to heavier receipts of pig iron, these being 16,819 tons in May.

FORD CAR PARTS ARE WELDED IN AUTOMATIC MACHINES

BY E. F. ROSS
Associate Editor, STEEL

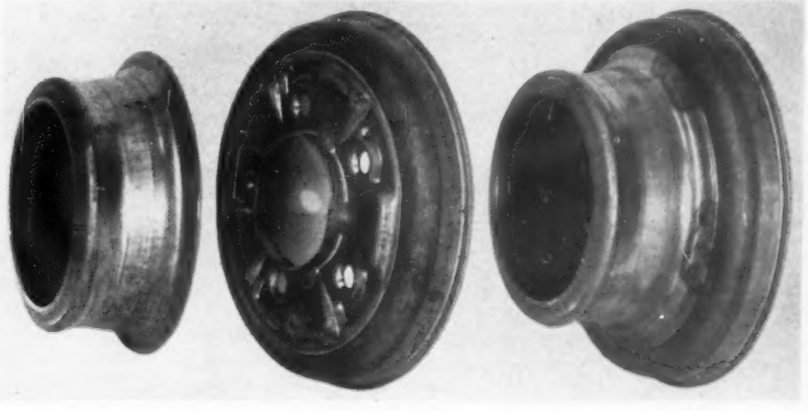


A close-up of the automatic hydraulic wheel shell welding machine with the head raised after the two steel shells have been joined by 15 spot welds

THE majority of parts for the new Ford V-8 and Model B are fabricated by the same or somewhat similar methods as the corresponding parts for Model A, but there are some outstanding exceptions. One of these is the method for making the wheel hub shells, the change being necessary because of the considerably larger hub cap used and the fact that the five bolts for mounting the wheel to the hub are concealed by the hub cap.

The principal member of the hub shell assembly, shown in an accompanying illustration, is a dish-shaped pressed steel section containing the five bolt holes and a circular central opening to give access to the wheel bearing. To the periphery of this section are later welded the short wire spokes. The second member of the wheel hub is a pressed steel band-like section in the outer opening of which the hub caps will be inserted and to the periphery of which will be welded the long spokes. These two pressed steel parts are spot welded together with 15 spots, three between each two bolt holes. For this operation an entirely new automatic hydraulic spot welder has been developed and built by engineers of the Ford Motor Co.

In this machine, illustrated on the accompanying pages, the small outside hub section is placed end down in a die and the larger part is laid on top of it and located by five projections through the bolt holes. When the operating button is pushed, a hydraulic head on which are mounted five water-cooled welding points moves downward to a determined position in the hub. Each welding point is equally spaced around the diameter and carried on a short radial arm pivoted to the head. In the



The wheel shell assembly comprises two pressed steel shells which are welded together automatically by 15 individual spot welds

In the illustration, the hub shell is at the left; the inner shell in the center; and completed assembly at the right

table of the machine around the fixture holding the hub parts are located five small hydraulic cylinders with pistons which move upward and exert a pressure of about 1700 pounds on the outside hardened ends of the welding point arm. Therefore, the welding point moves downward to contact with the work and to make a spot weld.

Indexes Automatically

One spot weld is made at a time and the machine is so timed in its automatic mechanism as to make the five welds of one series in proper sequence. These welds completed, the electrodes raise automatically, the work indexes a few degrees, the electrodes descend and make the second series of five consecutive welds. This operation then is repeated to make the last five welds and the cycle is completed, whereupon the hydraulic head moves upward to permit unloading and reloading.

This welder has an output of 720 wheel hubs in 8 hours and one operator will handle four machines. The primary of the transformer contained within the machine operates on 440 volts and the secondary provides a current of 25,600 amperes at 2 volts. It is necessary to make the 15 welds individually rather than in series or all at once, because in either case a transformer of prohibitive size would be required.

Tests have shown the welds to have a tensile strength of 60,000 pounds per square inch. It should be noted that with the hub shell designed in the fashion described, the largest proportion of the load is carried by the large inner shell, while the outer shell welded on carries a relatively small load and thus is less likely to place severe strains on the weld or to cause failure.

THIRD of a series of articles describing metalworking processes used by the Ford Motor Co. in building its new automobiles. This one describes welding methods employed for various car assemblies. The first installment was published in the June 6 issue of STEEL and the second in the June 20 issue. Subsequent articles to appear in early issues will deal with forging, heat treating and pickling practice.

Continuous Welding Adopted

As was the case with Model A, the rear axle shaft housing and front radius rods are made from electric welded tubing. For Model A the welds were made by passing the arc over the seam and then closing the seam with pressure. This process now has been made continuous by passing the work under the arc and the result is increased welding speeds. For the axle shaft housings, the speed has been increased from 30 to 55 inches per minute and for the radius rods from 65-72 to 80 inches per minute. The operator's task is simply to keep the tubular parts fed into the conveyor so that the arc remains continuous.

Because of a longer wheelbase, the driveshaft and torque tube of the V-8 and Model B are longer than those on Model A. They are also lighter and stronger. In Model A the rear radius rods were attached to the forged steel universal joint flange on the forward end of the torque tube and to the forged brake plate flanges on the outer ends of the rear axle shaft housings. With the use of longer torque tubes on the new models, it is necessary to attach the radius rods to the torque tube at a point about 12 inches from the front end of the tube and to the rear axle shaft housings a short distance from their outer ends.

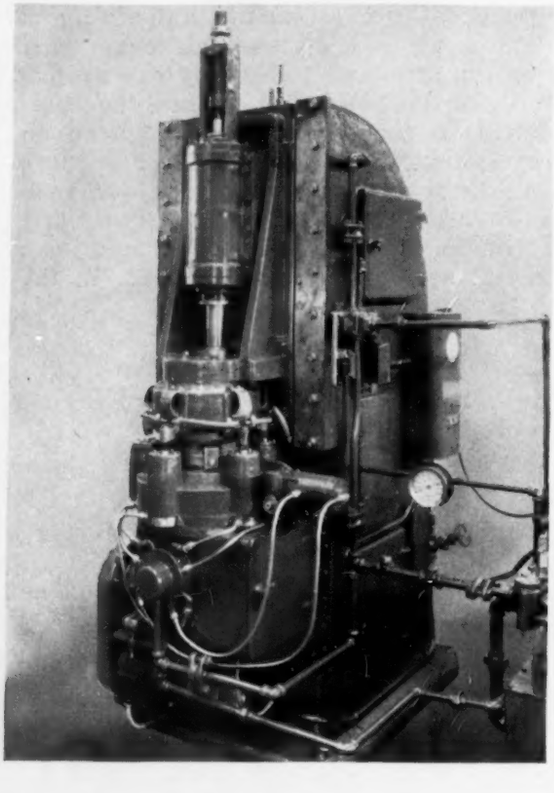
This attachment is provided by drop-forged brackets or lugs arc welded to the torque tube and axle shaft housings. New welding equipment has been developed to handle these operations. Since the welding operations are similar, only that of the torque tube will be described.

First of all, the torque tube is placed in a fixture and the forged lug is located accurately by fixture and spot welded in position. The tube then is transferred to an automatic arc welding machine in which the arc deposits a bead of metal around the lug, as shown in an accompanying illustration. This machine is automatic in that as the tube is clamped in the fixture, the arc is struck and a cam mechanism is started to cause the arc to describe a rectangular path around the lug. With the cycle completed, the arc is broken and the machine is ready for unloading and reloading.

2500 Pieces in 8 Hours

Welding wire feeds down to the welding head automatically from a coil suspended over the machine. Two machines of this type are attended by one man and his production is 2500 pieces in 8 hours. Lugs are attached to the rear axle shaft housings in a similar manner. In this case, however, the lug is welded only on two sides instead of all around, therefore the shaft is rotated slightly with the lug between two arcs to accomplish both welds simultaneously.

The driveshaft for Model A was a solid steel shaft weighing 15 pounds, but for the new models it is a section of 1¾-inch diameter electrically welded steel tubing with solid tapered ends welded on and weighing only 9 pounds. The forward solid



WELDING the hub to the shell to form the wheel hub shell assembly. This automatic hydraulic machine has an output of 720 hubs in 8 hours and one operator handles four machines. In proper sequence the five welding points make contact at 1700 pounds pressure to make three series of five welds. The welding potential is 2 volts and the current 25,600 amperes

end is for connection with the universal joint and the rear solid end for attaching the pinion gear. At first the solid ends were welded to the tubing with flash butt joints, but present practice is to insert the solid ends into the tubing for a short distance and to arc weld the end of the tubing to the solid end.

This method, of course, provides greater rigidity in the tube. In spite of the 40 per cent reduction in weight of the new driveshaft as compared with Model A, tests have shown the elastic limit in torque to be approximately 14,000 inch-pounds against 12,000 inch-pounds for the solid shaft.

The muffler for the new models weighs just about half that of the muffler for Model A. It is shorter and cylindrical in section as compared with the former tapered design. In the first operation a rectangular section of steel sheet is formed to cylindrical shape 6 inches in diameter; in the second operation the lap seam is spot welded in three places; and in the third operation the seam is resistance welded by passing under a rotating copper disk electrode. Next a pressed steel center support with a hole in the center is forced into the muffler half way and spot welded to the shell in six places. A straightening operation to true up the cylinder comes next.

Complete Assembly Welded

In the next two operations the spherical intake and exhaust ends of the muffler are flash butt welded on and into this assembly is inserted a perforated tube with two baffle plates welded inside. This perforated tube is spot welded at the ends into the necks of the muffler end pieces. In succeeding operations, a short exhaust orifice tube and an intake tube are flash butt welded on at opposite ends of the muffler, to complete the assembly.

The instrument panel is an interesting assembly. It consists of an oval front panel and two side brackets for attaching to the steel dash on the chassis. It is in no way connected to the dash panel of the body, thus it is possible to remove a body from the chassis without disturbing the instrument panel or wiring. All parts of the instrument panel assembly are of pressed steel. Small brackets, also of stamped steel, and having integral nut retainers with enclosed nuts for securing the instruments are fastened on the back side of the panel around the three instrument openings. This complete assembly is joined by spot welding. The front of the panel is chromium plated and finished with a machine turned effect.

The spare tire carrier consists of a finished pressed steel head for mounting the wheel, two tubular arms with upset forged flanges on the end for mounting to the frame of the car. The two sections of tubing are tapering in diameter and are made by forming tapered steel stock into tubing by electric arc welding and later bending them to shape in presses. The larger ends of this tubing are next upset to fashion the frame mounting flanges. The smaller ends of the tubing then are flash butt welded to the pressed steel head, suitable holding fixtures being provided to insure the parts being assembled in proper relationship one to the other. This machine is necessarily unusual in its proportions because of the curving twists of the tire carrier and was designed and built by the company's own engineers.

The tail lamp bracket of the new models, shown in an accompanying illustration is of new type and is mounted on the end of the frame on the left side. The arm of the bracket is of formed tubular section with a flat mounting surface at the upper end for holding the lamp. The edges of the tube are not welded, but to the lower end is flash butt welded a pressed steel flange for mounting to the frame. The arc welding machine which performs this operation is capable of producing 250 welds per hour.

Simple Battery Bracket

Likewise, the bracket for mounting the battery in the car is of new design. As shown in one of the illustrations, it is made up of three parts all of pressed steel welded into a single assembly. It runs diagonally under the battery, therefore, the bottom is flat and the sides holding opposite corners of the battery are formed to right angles. This bracket is made from heavy-gage strip steel about 4 inches wide, the principal member being formed U-shaped with a frame mounting plate pressed at right angle at the top of one side. The frame mounting plate for the other side is formed separately and flash butt welded to the arm. The third member is a rectanguler plate spot welded to the bottom of the bracket to support the bottom of the battery.

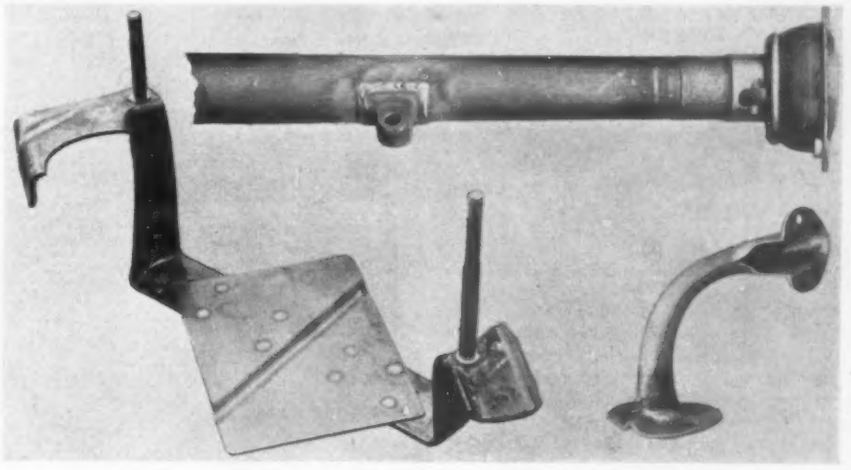
Pulley Design Changed

The pressed steel pulley which is mounted on the front end of the engine on the crakshaft deserves mention because of its uniqueness of design. In Model A this pulley was a machined gray iron casting. The new pulley consists of three parts, the hub which is an automatic screw machine part and two finished steel stampings.

The larger stamping has a hub hole in the center with the edge turned in and this edge is flash butt welded to the hub. The periphery of this stamping is shaped to form the front side of the belt groove. The second stamping has a large opening in the center and when placed in position against the first stamping constitutes the back side of the belt groove. The two stampings are secured together by six electric spot welds made simultaneously and automatically at the bottom of the belt groove. A cross section of the pulley shows an unusual contour, but this was made necessary to permit access of the welding electrodes.

One of the smallest and most inconspicuous parts for the V-8 indicates the painstaking care which the Ford organization has taken in the utilization of welding processes in an effort to gain economy. This part is the distributor cap contact

(*Please turn to Page* 28)



The front support for the rear radius rods is arc welded to the torque tube as shown at the top in this illustration. At the left is the battery bracket of strip steel assembled by butt flash and spot welding. The tail lamp support at the lower right is formed in two pieces and the arm joined to the flange by butt flash welding

Speed Problem Overcome in Spiral Welding of Pipe

SO GREAT has been progress in the art of welding that the cost of the plant, which may become obsolete in a few years, becomes one of the most important factors in the consideration of an installation in any pipemaking plant. Another factor is the cost of delivering pipe from mill to job, due to high railroad rates on hauling pipe. This sometimes means that pipe mills are distributed about the country, a plan already partly accomplished, incidentally, by the United States Steel Corp., with mills at McKeesport, Pa., Lorain, O., and Gary, Ind. But, generally, if it is decided to build new mills, and perhaps several of them, the mills have to be moderate in price and have a large output which, in turn, means a high speed of manufacture.

In a welded pipe mill of the longitudinal seam type it is the forming and handling machinery that is most expensive, the cost of the welding apparatus being comparatively moderate. In helical seam welding, on the other hand, the forming machinery cost is relatively low or about $45,000, for a machine to make pipe from 20 to 38 inches in diameter, at speeds up to 50 feet of welding per minute and wall thicknesses up to ¾-inch.

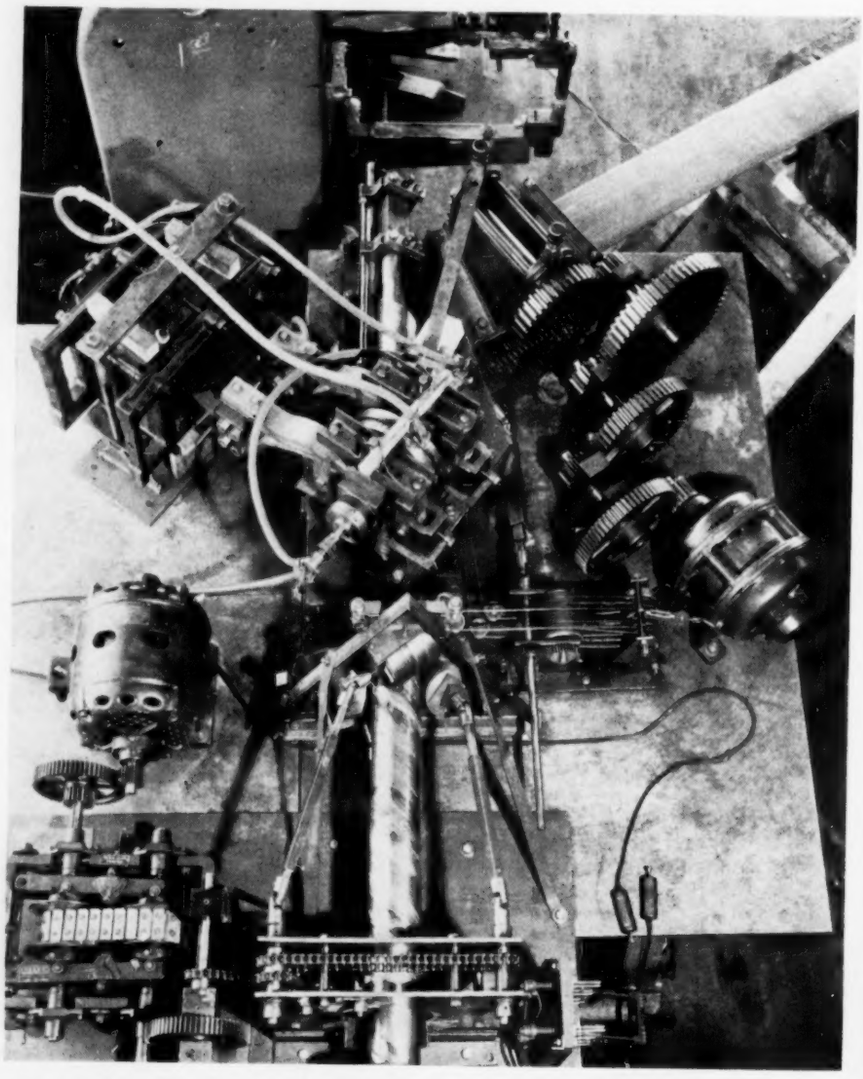
Spiral pipe welding machines of a new type are now in operation in two mills, experiments having reached the point where better than 12 feet per minute of 4-inch steel pipe, ⅛-inch wall, have been fabricated by electric resistance welding. Larger steel pipe has been welded spirally by this method and development of higher speed has been attained with the confident prediction that 50 feet a minute is possible and expected.

Spirally welded pipe is not new, but lack of speed has been a drawback which now appears to have been overcome by the development of machines automatically performing the work by electrical resistance welding. Success in welding spiral pipe depends on two paramount factors—the first, forming the strip into a spiral; and the second, welding the seam. Machinery for forming skelp in the new machine is not basically new. Some machines crimp edges, or lock crimp them, welding at the seam, but generally with thin-walled material. On thickness of the material depends largely on the success in arc welding of beveled skelp, but regardless of the wall, the process is admittedly slow. Strength of spirally welded pipe is high, but for most purposes longitudinally welded tubing passes all specifications. Speed is the real object in spiral pipe welding.

Pipe costs are mainly centered in two items, manufacture and transportation. The latter is especially important in distribution of pipe. This material loads badly and freight charges have always been high. Therefore, it has been desirable to locate production as near the leading markets as possible. The South, Middle West and Southwest are leading consumers of steel pipe, but with some few exceptions it is made largely in the East. To assure speed in production, need of equipment for

PROGRESS in spiral welded pipe manufacture has been delayed by lack of high production speed, an important factor in modern pipe fabrication. Helical-seam steel pipe made by the resistance welding method is now being produced at speeds rarely if ever before, attained. This has been accomplished successfully with larger sizes and heavier wall thicknesses than thought possible at one time.

A further development in steel pipe welding is a "portable" pipe mill which, mounted on railroad cars, carries the skelp to the field job, forms and welds the pipe near the point of installation and then moves on, only electricity and water being required at the point of setting up the equipment.



Looking down on complete unit for forming and welding pipe with a helical seam. Skelp feeds in at the upper right, is wound spirally, the seam welded under electrodes at the center, and emerges in pipe form. Speeds up to 50 feet per minute are said to be attainable

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certain capacity has been manifest which in spiral welding has been an uncertain factor.

An unusual pipe mill has been recently designed for one of the large oil companies. The entire machinery, forming, welding and pipe testing is to be installed on six flat cars, one of them carrying a jib crane.

These cars will be run under a shed erected near the job, the cars jacked up, and the plant ready for operation, only current and some water being used locally. As soon as the job of pipe laying has been finished, the jacks will be lowered and the mill will be ready to move to the next job.

In studying possibilities for a faster method of spiral pipewelding, Leon Cammen, New York engineer, who has developed the equipment under discussion turned to resistance welding which immediately introduced several important difficulties. In arc welding the edges need only be brought together, but in resistance welding pressure must be introduced at the seams in a constantly moving spiral pipe. In arc welding it is comparatively easy to keep the welding head over the seam and it can also be adjusted. Adjustments cannot be made easily in resistance welding once operations have started and the problem is to contact the center of the seam without deviation. Electrodes are ¼-inch apart. The pipe seam must be kept directly under without shifting as much as 1/16-inch in passing; otherwise an unequal heating of the edges results.

The first problem is to control the position of the seam between the electrodes and the second to produce a pressure in the weld. Movement of the unwelded spiral under the electrodes, must be held by pressure but not be completely halted; also the pipe must turn.

Mandrel Pin Is Used

These difficulties have been partially solved by attachment of a small pin in the mandrel over which the pipe climbs, the electrodes being arranged at an angle so that the seam passes directly under them. The pin prevents the skelp from going beyond the closely fixed point at which the seam must pass in relation to the electrodes, also making it possible for the application of moderate pressure and eliminating the danger of pyramiding. Pressure keeps the seam edges flush to the pin and prevents dragging and resultant widening of the seam.

As the pipe emerges from the electrodes it is gripped by a set of driven concave rollers, which may be seen in the illustration on page 26, set at an angle so that their concavity conforms with the surface of the pipe. These rollers are driven by a motor with a slipping clutch which is adjustable. Their speed is sufficient practically to pull the pipe through the forming mechanism and electrodes; and also to overwind the pipe, thus producing additional pressure which is jointly controlled by the mandrel pin and speed of the roller drive motor.

Operation Is Automatic

The machine is set and adjusted before starting, with strip welded end to end, finished pipe being cut off with an oxyacetylene torch. Runs are generally prepared for 75 to 100 tons of skelp. Once the run has started, no adjustments are made and the equipment is practically automatic, requiring little attention. The motor operating the concave rollers is of 5-horsepower capacity, motor shaft operating at 1750 revolutions per minute, a speed which is greatly reduced through a gear train in the feed. Pipe comes from the machine perfectly straight and round.

An entirely different type of machine has been developed for the manufacture of gathering pipe, where light weight combined with comparatively low resistance to pressure is desired. This machine can make by resistance welding pipe in low wall thicknesses, 1/16-inch and less, sizes which the machine previously described cannot handle. The latter machine forms a helical seam of the lap type, which it is claimed has never been done before.

Ford Car Parts Are Welded

(*Concluded from Page* 25)

and eight of them are molded in the nonmetallic distributor cap. Corrosion resistance was a necessary requirement, therefore, the first of these contacts were made from a small cup-shaped brass screw machine part of about ½-inch diameter, into the closed end of which was riveted a short length of formed steel wire.

With the improved method which has just been developed, the brass piece has been replaced with a cadmium plated steel screw machine part of identical size. Instead of inserting and riveting a formed steel wire in the closed end, however, a wire with an upset end is spot welded to the cup. It is estimated that the new part can be produced at a saving of ½ cent each over the earlier type.

Gasoline from the tank in the rear is pumped to the carburetor through brazed steel tubing of 0.240-0.260-inch outside diameter and 0.180-0.200-inch inside diameter. Likewise, the suction for operating the gasoline gage is conducted from the gage mechanism in the tank to the gage on the instrument panel through a similar tubing of 0.098-0.102-inch outside diameter and 0.50-0.54-inch inside diameter. These two lengths of tubing are resistance welded together side by side, thereby affording a stronger and simpler line assembly to connect the various units and to attach to the frame. The portion of the tubing extending in the gasoline tank is cadmium plated to resist corrosion and the remainder of the surface is copper plated or tinned. This tubing is not manufactured in the Ford plant, but the method of welding was developed by Ford engineers.

The welding operation is comparatively simple—the tubing is passed into the machine between rotating copper electrodes having grooves of proper diameter in their peripheries to hold the tubing in contact. As the tubing moves through the electrodes the two sections are seam welded at their point of contact. The welding speed is from 60 to 100 inches per minute.

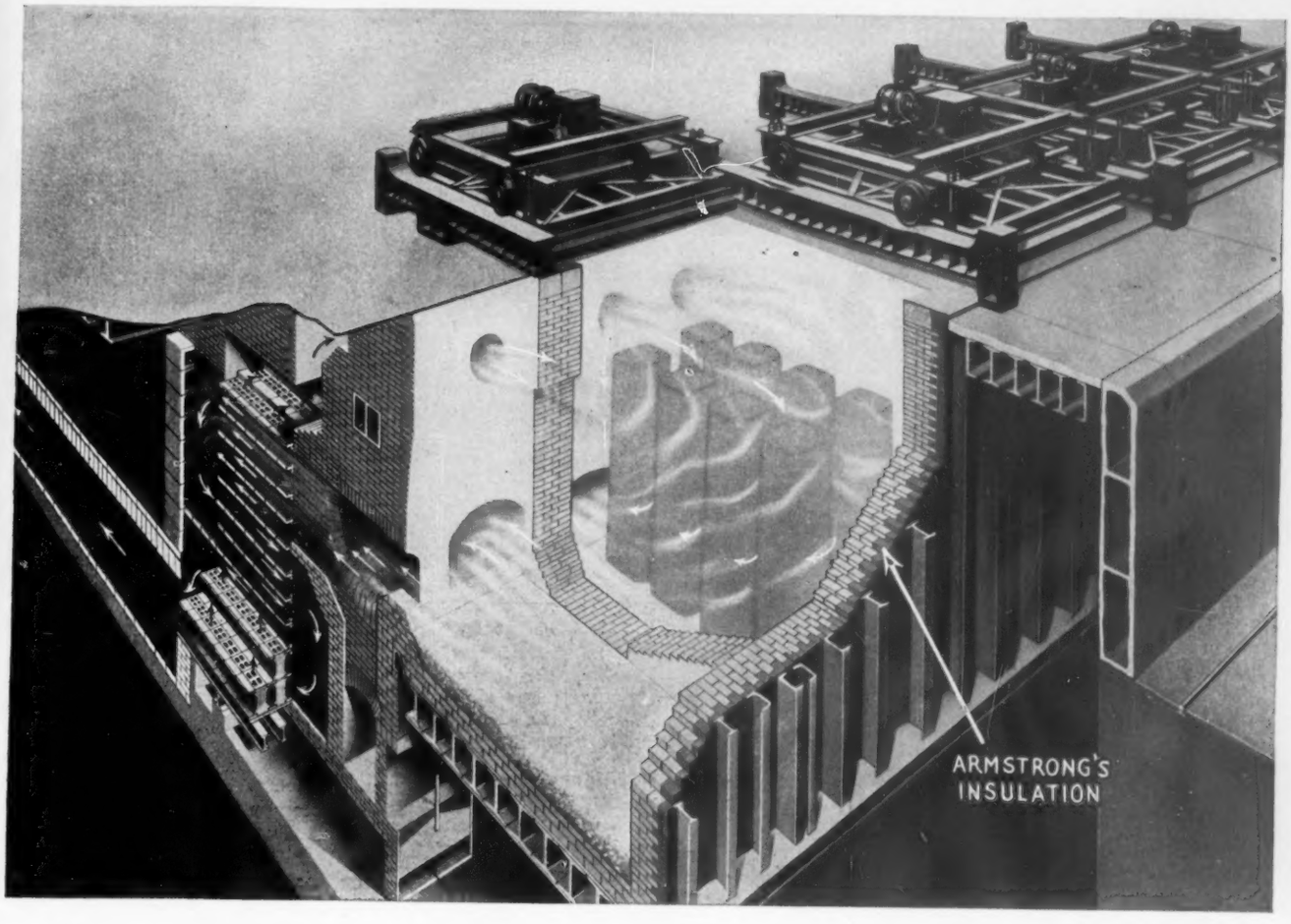
Many Rustless Steel Parts

Model A introduced the use of rustless steels and the new models continue the use of this metal, although the amount per car is slightly less, this being due largely to the fact that the radiator shell is no longer of rustless material. On the other hand, the total number of parts made of rustless is larger.

Parts for which rustless steel is used are: Hub caps, radiator grill rim, starting crank hole cover flange, starting crank hole cover, radiator shell molding, fuel tank cap, headlamp assembly, cowl lamp assembly, tail and stop light assembly, headlamp conduit assembly, horn conduit, hood hinge top, bumper bar bolt cover, bumper bar end plug, front belt rail finish panel molding, windshield stanchions, top rib socket nut cover, some outside door handle assemblies, and center section of the tie rod.

It is interesting to note that the center section of the tie rod, a curved rod between the two front fenders and supporting the headlamps, is not of solid rustless material as might be supposed. The rod is a carbon steel tubing around the middle section of which between the headlamps is wrapped a thin strip of rustless steel without welding or other attachment. The rod is formed to its final curvature after the wrapping operation. Several other parts of the car are fabricated in a similar manner, the purpose being to use as thin a section of the relatively high-priced rustless steel as possible and yet to afford an adequate strength by means of the backing material.

SC ONE-WAY PITS are INSULATED one way, too!



SURFACE COMBUSTION cuts fuel costs with one-way fired soaking pits. These pits can use the most economical fuel. They get the most out of any fuel. And Armstrong insulation helps in that job.

Armstrong's and Nonpareil Insulating Brick prevent fuel waste. They do more than that. Their structural strength contributes to the permanence of fire brick walls. Because they are machine-sized, they are easier to lay up—a time-saving factor. And they are often laid up dry, which further increases their high salvage value.

Armstrong's Insulating Brick are burned at Cone 15—proof that they will serve efficiently for temperatures up to 2500° F. Nonpareil are recommended for temperatures up to 1600° F. Both brick generally are used behind the refractory. Both are made in all standard fire brick sizes, and in special shapes to order. Prompt shipment can be made in any quantity from our centrally located factory at Beaver Falls, Pennsylvania.

Ask us to send you samples, and complete technical data. Armstrong Cork & Insulation Company, 920 Concord Street, Lancaster, Pennsylvania; Canadian offices in Montreal, Toronto, and Winnipeg.

Armstrong's (A) Product

SURFACE COMBUSTION SOAKING PIT

SECTIONAL VIEW *of a one-way fired Surface Combustion soaking pit. It can be fired with coke gas, natural gas, blast furnace gas, fuel oil, producer gas, or with a combination of these fuels. Advantages claimed for it include: Fuel saving of from 20% to 35%; lower maintenance costs; better heated steel; and reduction of scale. Armstrong's insulation helps to control temperature and reduce fuel waste.*

SC

Armstrong's and Nonpareil Insulating Brick

High Temperature Insulation for Industrial Furnaces

Recommends Dual Firing in Boiler Furnace Design

HEAT liberated in present-day boiler furnaces with water-cooled walls appears to have reached the limit. This fact was made known by H. J. Kerr, Babcock & Wilcox Co., New York, while discussing maximum complete combustion rates with a minimum excess of air in water-cooled furnaces for steam boilers at the twenty-eighth national meeting of the Association of Iron and Steel Electrical Engineers, Pittsburgh, June 20-23.

In his discourse, Mr. Kerr mentioned that a power boiler furnace now is being constructed in Chicago with a capacity of 5000 pounds of steam per hour. The furnace is of the vertical type with a 39-foot front and with the fuel being charged against deflecting castings which directed it down on a slag bed. The speaker emphasized the desirability of having boiler furnaces protected by water-cooled tubes and of having the burners arranged in a straight line.

On account of recent improvements in power houses, he mentioned that present-day boiler furnaces should be designed to use both pulverized coal and blast furnace gas. The amount of water cooling, he said, depends upon the heat liberated by the powdered coal. Mr. Kerr, in conclusion, asserted that the problem facing combustion engineers today is not how high a temperature can be obtained with blast furnace gas, but how much of the gas can be burned within a given time.

Scaling of Steel Costly

Figures serving to indicate the magnitude and value of the amount of metal lost by the scaling of steel at forging temperatures were cited by D. W. Murphy, department of engineering research, University of Michigan, Ann Arbor, Mich., in discussing the oxidation of steel at elevated temperatures. For last year he estimated the loss due to scaling as ranging from $326,000 to $520,000. As depicted by curves, there seems to be a critical rate on supply of oxidizing gas beyond which an increase in the velocity of the gas has no effect.

Presenting a curve showing the effect of variational temperature on scaling, the author explained that the rate of scaling diminishes with increasing time because of the increasing thickness of the scale. The increasing thickness of scale operates to reduce continually the amount of oxidizing agent, he continued, diffusing inward toward the metal. Consequently, as the supply diminishes steadily, the rate of scaling or formation of new oxides must also diminish, he contended.

When the temperature to which the steel is exposed is increased, the scaling losses mount rapidly and he used a curve to prove his contention. He directed attention to the fact that the curves change in direction rapidly between 2400 and 2500 degrees Fahr., and attributed this marked increase in scaling losses to the fact that in this temperature range the scale becomes liquid and consequently fails in its protective action.

In the forging range of temperatures from 2000 to 2500 degrees Fahr., the author found that steam is the most active scaling agent, while carbon dioxide and air are approximately the same in scaling power. Oxygen does not exceed pure steam in effect until 2375 degrees Fahr. is reached, at which point the oxygen reaction is accelerated markedly.

Sulphur Dioxide Harmful

In conclusion, Mr. Murphy emphasized among other things that the presence of as little as 0.1 per cent sulphur dioxide in the products of combustion, seriously increases scaling losses at all temperatures in the forging range and larger amounts increase these losses still more. It is advisable, he contended, to operate with a small percentage of carbon monoxide in the furnace atmosphere in order to insure the absence of oxygen.

Selection, installation, care and maintenance of measuring instruments used in the steel industry should be entrusted to specially trained men who progressively are interested in their work, stated M. J. Conway, fuel engineer, Lukens Steel Co., Coatesville, Pa., in discussing this phase of steelworks operating departments. The author discussed this service problem from the standpoint of large and small concerns pointing out that the company having the proper equipment to measure its entire process, backed up with an intelligent recognition of the necessary care and maintenance of their instruments, will find a substantial return in proportion to the investment and the amount of time and interest devoted to the subject.

Comment on Mr. Conway's paper brought to light a recent development—an automatic standardizer which checks the measuring system automatically every 45 minutes. Measurements during the past few years have provided a basis for steelworks control and for this reason the duties of the instrument man are highly important. Most commenters were of the opinion that instruments should be made to assist the operator rather than to disclose his shortcomings.

New power plants should not be constructed in line with steam pressures, but should be based on future uses of blast furnace and coke oven gas, stated C. W. E. Clarke, United Engineers & Constructors Inc., Philadelphia. A conservative temperature limit of steam for turbine use is 750 degrees Fahr, he stated. Steam used in power houses and generated by blast furnace gas does not exceed 450 pounds per square inch at the present time.

New Ideas in Welding

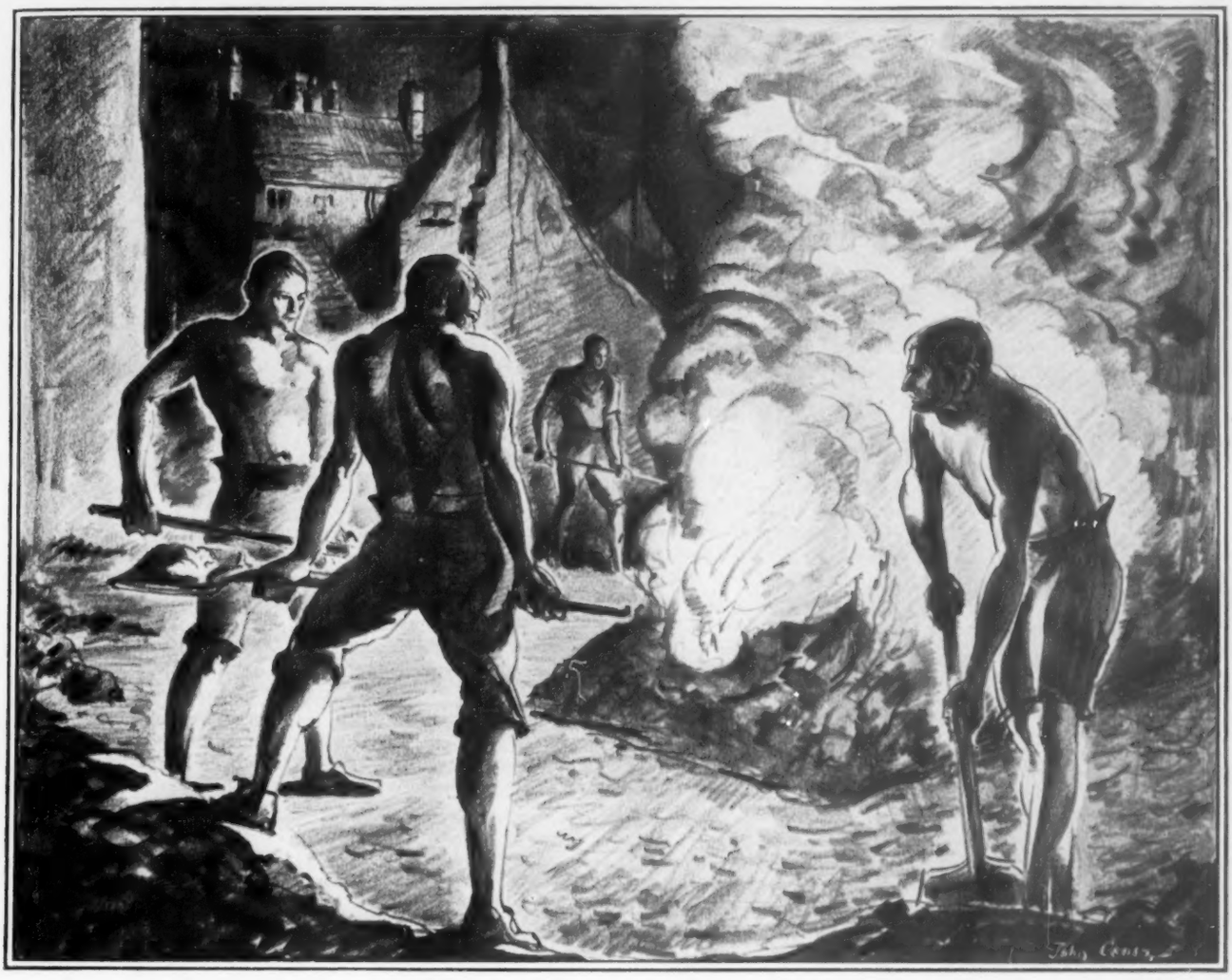
Developments in the fabrication of steel by welding were traced at the final session of the association by W. E. Watson, Youngstown Welding Co., Youngstown, O., who described among other steel mill appurtenances a table roller made of steel pipe with short lengths of steel bar welded to the ends to serve as shafts. Installation of these built-up rollers in the approach and runout tables at one particular mill has reduced the weight of the mill conveyor and effected a material saving in power requirements.

In commenting on this paper, Mr. Freese, Pittsburgh Steel Foundry Corp., Pittsburgh, mentioned that alloy castings now are being developed to compete with welded fabricated commodities.

Following the presentation of Mr. Watson's paper, members of the association engaged in an open discussion dealing with mechanical power transmissions which is to form the basis of a new division of the association now being organized. Problems to be discussed at future meetings of this division are to deal with various types of units and methods of driving mediums such as chains, hydraulic, gears, pinions, friction couplings, ropes, belts, etc. Expression from the floor was that inasmuch as these problems are of an economic character, they are interrelated, and therefore should be considered by both mechanical and electrical engineers of the association.

In presenting statistical data and operating methods dealing with roll neck lubricants and lubrication, W. D. Hobson, president, the Hobson Corp., Chicago, described a new anhydrous lime base grease recently placed on the market which will not separate or break down under pres-

COKE REPLACES CHARCOAL



COKE, when it replaced charcoal for smelting iron ore relieved the iron industry from fuel shortage and started it on the road to greatness. The process of carbonizing coal, or coking it, did not originate with the iron trade, however, but came as a health measure. ,,, Early Britons considered coal burning unhealthful because of the gases liberated. Queen Elizabeth, in 1550, prohibited coal fires in London during parliament sessions, lest the health of the "knights of the shire" might suffer. Coke was developed as a fuel for open fire places because coking removed sulphur from the coal. ,,, In 1619 Dud Dudley, son of Lord Dudley, tried to smelt iron ore with coke. The attempt was moderately successful but the charcoal burners, fearful for their jobs, destroyed the works and the idea was abandoned. ,,, In 1740, when charcoal scarcity threatened the iron industry Abram Darby, at Coalbrookdale, used coke successfully and from that time iron progressed. ,,, Coke was first made in open piles and the beehive furnace came into use in 1764.

Interlake Iron Corporation operates 502 coke ovens in its modern by-product plants, having a yearly capacity of 2,050,000 net tons of coke for blast furnace, foundry and domestic uses; and in addition to chemical by-products it supplies billions of cubic feet of gas to its communities.

INTERLAKE IRON CORPORATION

PIG IRON ✓ COKE

PICKANDS, MATHER & COMPANY, Sales Agents

CLEVELAND ✓ CHICAGO ✓ DETROIT ✓ ERIE

sures within its limits. Contrary to general opinion, the speaker stated, the consumption of grease does not increase with the installation of automatic greasing systems. If the proper amount of grease required by the bearing is once determined, he continued, and can be supplied readily, it is possible that large savings in grease consumption thereby can be effected.

Considerable thought is being given to roll necks with complete sleeve bearings, stated the author. A sizing mill in the Pittsburgh district equipped with complete sleeve bearings made of bronze has rolled 600,000 tons on the original bearings. This type bearing can be operated in many places without water, requires less power and lubricants, and where babbitt alone is used, higher polish on the roll necks is effected. In closing the author made a plea for a more careful selection of metals on a performance basis rather than price per pound. There is not a plant operating, he contended, which does not have standard open neck and full sleeve babbitt and bronze bearings which could not be made more efficient.

Revised Tentative Specifications for Gray Iron Castings Fulfill Need

A LONG step forward for the gray iron branch of the foundry industry was accomplished at the thirty-fifth annual meeting of the American Society for Testing Materials in Atlantic City, June 20-24 when committee A-3, under the chairmanship of Hyman Bornstein, Deere & Co., Moline, Ill., presented proposed tentative specifications for gray iron castings.

These specifications, which offer revisions and will supersede present A. S. T. M. standard specifications for gray iron castings and also those relating to so-called high-test cast iron, involve many new departures. Acknowledgement was made by the committee to the Gray Iron institute for its co-operation in development.

Seven Classes Listed

Seven classes of gray iron castings are listed and designated, running from 20,000 to 60,000 pounds per square inch tensile strength. Transverse tests are provided, as optional and provide for three bars, 0.875, 1.2 and 2.0 inches in diameter, which are to be tested upon span lengths of 12, 18 and 24 inches, respectively. Proportionate requirements for minimum breaking loads at the center are provided, in accordance with the various classifications. Both tension and transverse bars are cast separately from the casting.

On agreement between manufacturer and purchaser, three diameters of transverse test bars are as follows:

Test bar	Controlling section of casting, inches	Nominal diameter of test bar as cast, inches
A	0.75	0.875
B	0.75-1.10	1.20
C	1.11-2.00	2.00

A table of correction factors for variation from these diameters is supplied.

Various requirements as to workmanship, finish, inspection and other factors are included and at the request of the buyer, the manufacturer is obligated to certify his product to conform to the requirements of the specifications. Chemical content is subordinated to physical properties, except upon individual agreement.

The committee also presented new tentative specifications for cast-iron culvert pipe divided into standard, heavy and extra-heavy classifications.

The mechanism of deformations in gray iron and a new theory on the phenomena of permanent set, were outlined in a paper by J. W. Bolton, Lunkenheimer Co., Cincinnati. Stress distribution in gray iron is not uniform and paths of greatest stress intensity usually lie between graphite flakes closly approaching each other and where position in relation to the directional line of stress is unfavorable. Resistance is lessened with greater amounts, large size and unfavorably distributed flakes, and permanent deformation is aided. Compacting graphite flakes between adjacent matrix probably takes place at lower deformations, but overstressed paths increase with heavier loads.

Size and Distribution Factors

While resistance to permanent deformation varies inversely with the amount of graphite, if size and distribution of particles are constant but depends more directly upon the amount, size and distribution of graphite and nature of the matrix rather than upon amount of graphite present. The influence of the shape of graphite was noted in the discussion of A. H. Dierker, Ohio State university, Columbus, O., who remarked upon the absence of apparent set in malleable iron.

New proposed tentative specifications presented on behalf of the malleable committee by E. K. Smith, Electrometallurgical Sales Corp., Chicago, were presented to cover castings for railway, motor vehicle, agricultural machinery and general purpose machinery uses. These offer two grades with tensile strength requirements of 50,000 and 53,000 pounds per square inch, respectively, and elongation of 10 and 18 per cent in 2 inches.

Reduce Prices of Cemented Carbide Tools and Tips

Thomas Prosser & Son, 15 Gold street, New York, American representatives for Fried. Krupp A. G., Essen, Germany, announce a general price reduction on all Widia cemented-carbide tools and tips, effective July 1.

The reduction run from 10 to 50 per cent on various tools, depending primarily on the size of the cemented-carbide tip used. The base prices of tips themselves have been reduced from 10 per cent on the smallest to over 40 per cent on the largest. Labor charges for manufacturing the tools likewise have been reduced.

Thomas Prosser & Son also are inaugurating a new service, the supplying of milled and brazed tools. These tools are furnished brazed complete ready for grinding, by the customer. Substantial savings can be effected by the use of this service, especially in the case of small-size Widia tipped bits and when it is not necessary to have the fine finish and careful grinding which is put on standard tools.

The price reductions are effective on all grades, including the new Widia X, which is meeting with success in machining steel. This new grade permits much higher cutting speeds and elimination of cratering or cupping out of the tool which previously was encountered with hard metal compositions when machining steel.

Seek To Standardize Surface Qualities

Recently, at the suggestion of the American Society of Mechanical Engineers, the American Standards association, through a special committee, undertook an investigation of the standardization of finishes of machine and other surfaces. It was found that such standardization was desired by the industry, and the American Society of Mechanical Engineers and the Society of Automotive Engineers have been requested to act as joint sponsors of a sectional committee to undertake this work.

Tentative scope has been suggested to include standards of quality of finish for machined surfaces, standards of quality of finish for ground surfaces, methods of inspection for the quality grades standardized, and designation of quality grades for use in specifications and on drawings.

Making the Most of

METHODS AND MATERIALS

AS A SAFETY measure and as a means of facilitating maintenance, piping and conduits in a plant should be color marked so as to indicate to which of five major classes of materials their contents belong. This marking also tells whether the material concerned is safe or unsafe. The approved American recommended practice lists the five classes, their respective characteristic colors and letter symbols as follows: F—Fire protection material—Red; D—Dangerous material—Yellow; S—Safe material—Green; P—Protective material—Bright blue; and V—Extra valuable material—Deep purple. The basic color may be applied over the entire length of the piping system, or in bands 8 to 10 inches wide placed at intervals throughout the system, preferably near valves.

$ $ $

Within the past year, there have been a number of interesting applications of centrifugally cast materials. One installation of a continuous strip mill for steel had over 100 centrifugally-cast conveyor rolls of iron having a brinell hardness of over 275.

PEARLITIC rail steels have been found to show a reduction in impact resistance to occur gradually down to temperatures of 18 to 20 degrees Fahr. From that temperature down, the resistance to shock has reversals at fairly definite temperatures. Tests also were made on carbon steel containing 0.10, 0.42, and 0.92 per cent carbon and open-hearth iron. With the exception of the 0.10 per cent carbon rivet steel all the materials showed this definite change in impact values at similar temperatures. The 0.10 per cent carbon rivet steel does not show similar reversals but gradually loses resistance to shock after a temperature of 40 degrees Fahr. is passed. Conclusions are drawn that the different components, cementite, ferrite, etc., may have different coefficients of contraction due to temperature change, and cause minute strains in the structure, fully developed at or near -18 to -20 degrees Fahr., also that these coefficients may be constant down to this temperature but not below it.

$ $ $

A pull broach for round holes and the like, if left lying down on a metal bench or window sill for a few days, will run when next used and will require resharpening to prevent running. Broaches should always be stood up in a suitable rack.

$ $ $

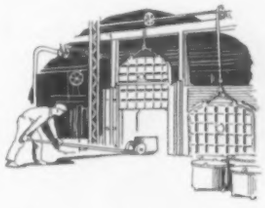
Recently at the plant of a western rock products company, the 8-ton, 8½-foot diameter cast-steel bowl of a large crusher which had been in constant operation fractured in such a way that it locked in place. It was necessary to cut it into pieces with the oxyacetylene torch to remove it, thereby making repair by welding impracticable. Therefore, it was decided to reclaim by bronze welding another fractured bowl of the same size which previously had been consigned to the scrap pipe. The job was completed successfully with a saving of over $2000 as compared with the cost of a new bowl.

$ $ $

A simple but efficient detector of mercury fumes is used to detect possible leaks and losses of mercury in the Emmet mercury-vapor process of steam generation in Hartford, Conn. It depends for its action on the fact that selenium sulphide, a yellow compound, is blackened by exposure to mercury fumes; and the degree of discoloration is a measure of the amount of leakage when conditions of contact are controlled. A photoelectric tube keeps the eye on a strip of paper that is coated with selenium sulphide. If the paper should become blackened by mercury, the amount of light reflected from the paper to the phototube is reduced, an electric circuit is affected and a bell is rung, a light is flashed, or some other signal warns the operator that mercury vapor is being found in the stack gases.

$ $ $

A middle west structural fabricator has developed a market for approximately 1000 tons of steel a month in connection with the manufacture of heavy dies used in the forming of automobile bodies, fenders and frames. Most of the material which goes into this work is steel slabs of 2-inch thickness or greater. With its flame-cutting and welding equipment this company has been able to obtain considerable satisfactory business along these lines.



A NEW method of case hardening steel has been announced by a New England valve manufacturer. Claimed as radically new, the process is in principle a form hardening by which ordinary carbon steels can be case hardened to a depth of approximately 0.025 inch, the case produced being hard enough to scratch glass with ease. Parts so treated are said to be practically impervious to wear.

$ $ $

Minute quantities of water vapor appears to have considerable influence on the atmosphere of a heat treating furnace. It is said that dry hydrogen will not decarburize steel until a temperature of 1600-1700 degrees Fahr. is reached; with 0.1 per cent water vapor, decarburization will take place at 1200 degrees. A neutral atmosphere is defined as one which will not scale, carburize or decarburize the particular piece of steel being treated. Tool steel requires an excess of oxygen if the atmosphere is to be truly neutral. At 1600 degrees Fahr., 4 per cent excess is required and at 1700 degrees, 2 per cent is needed.

No. 61

Pickling Equipment that passes the test of service

Monel Metal pickling baskets built to designs and specifications of the Stockham Pipe & Fittings Co., Birmingham, Ala. Used for pickling steel forgings prior to inspection and machining. Also used in hydrofluoric acid for dissolving foundry sand from castings before machining, to increase service life of cutting edges on precision machine tools.

Yes...you can also use

MONEL METAL PICKLING BASKETS

for removing foundry sand...

● Just as steel forgings must be pickled to remove gritty oxide scale prior to inspection and machining, it is often necessary to clean foundry sand from iron and steel castings. When this sharp, file-like sand is left embedded in the surfaces of castings, the accuracy of precision tool cutting edges is impaired, with consequent loss of valuable time and equipment. • The best way to remove this sand is by pickling in a hydrofluoric acid solution. Since hydrofluoric acid is destructive to most metals, the use of Monel Metal equipment is almost indispensable for this form of pickling. Monel Metal is one of the few materials which is practically unaffected by this highly active acid! • In addition to this rare advantage, Monel Metal offers rugged strength which further increases the service life of pickling baskets. Monel Metal is tough and rigid, with a sinewy, rolled structure which withstands heavy loads and hard wear without danger of breakage. Many plants are still using Monel Metal pickling baskets which have been in constant daily service for years! • We'll gladly send you further information about Monel Metal's many uses in modern pickling equipment. Just write.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

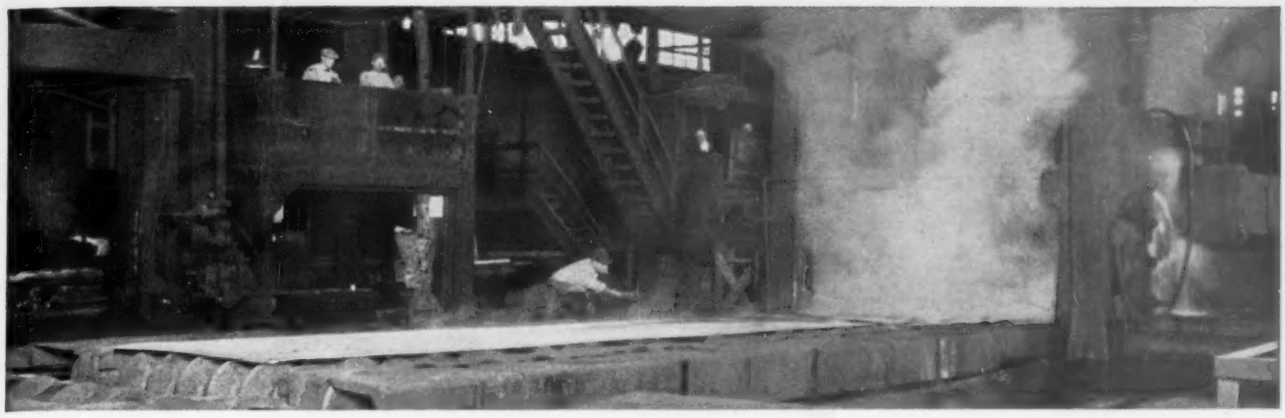
INCO MONEL METAL

A HIGH NICKEL ALLOY

MONEL METAL

NICKEL ALLOYS PERFORM BETTER LONGER

Monel Metal is a registered trade mark applied to an alloy containing approximately two-thirds nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.



PROGRESS IN STEELMAKING

INTRODUCTION of a new pressure method of forging permits finish forming or hot coining to be performed with the initial heat remaining in the hammered or upset piece, before or after trimming; or, the normalizing or annealing heat can be used. Uniform and accurate forgings are obtained inasmuch as the temperature during the working period is below the scaling point.

ECONOMY of operation is claimed for a new nonsputtering welding rod recently marketed by a wiremaker in the Pittsburgh district for joining mild steel or boiler plate stock. Reverse polarity is not required. The coating is moist-proof and will not peel or crack off when the electrode is bent to a reasonable degree.

♦ ♦ ♦

Coating the silica brick of open-hearth ports with a layer of either magnesite or chrome cement affords greater resistance to the attack of oxides in the furnace gases and prolongs their life.

♦ ♦ ♦

Automatic oiling of industrial machinery now is accomplished by a recently developed device which operates without the use of a pump or moving parts. The oil tank is equipped with an electric heater controlled by a thermostatic switch. When the temperature within the tank in increased, the oil undergoes expansion and is forced to the bearings. When the temperature reaches 150 degrees Fahr. the thermostat shuts off the current and permits the oil to cool to 100 degrees when it again functions to restore the 150-degree temperature. The vacuum, which occurs during the cooling cycle, is used to refill the vessel from a reservoir. The main feed line is equipped with a check valve which prevents oil being drawn back from the bearings. An auxiliary feeder also is employed for maintaining the pressure while the tank is being refilled. By this arrangement oil in the feed line is always under pressure.

♦ ♦ ♦

Curtailment of metal loss and prevention of overpickling are claimed for a new pickling inhibitor which is mixed with the bath in an amount not exceeding ½-pound per 100 pounds of concentrated sulphuric acid.

♦ ♦ ♦

Zinc ammonium chloride used as a bath flux cover on the entrance section of galvanizing kettles has a decided effect on the bonding of the coating, according to an authority on galvanizing practice.

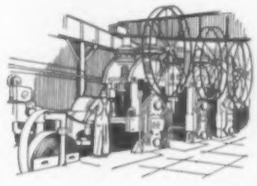
STEELMAKERS who coat their ingot molds by dipping them in a solution of graphite agitated by air, advocate building the dipping tank with a false bottom to facilitate removal of sediment and foreign material periodically.

♦ ♦ ♦

Marking milling cutters, broachers, drills and other cutting tools used in steelworks' machine shops as well as hardened steel to be stored against tool room requirements has been simplified by the development of a steel writing device. The marking unit mounted in an air-operated grinder is rotated at 40,000 revolutions per minute which is sufficiently fast for the tool to make the desired identification mark.

♦ ♦ ♦

Chrome-nickel corrosion-resisting steel of antifriction quality and with free-machining properties imparted by the introduction of 0.30 per cent sulphur, now is being marketed by an eastern steelmaker.



AN EXPERIMENTAL 4-high cold strip mill with the two working rolls driven by separate motors, properly synchronized, has made its appearance in the rolling mill industry. Claim is made that almost any desired strip rolling condition can be duplicated with the new mill. Almost any size or type of working rolls can be used and the change from one to another can be made quickly. The unit is built to operate at various speeds and is equipped with automatic reel devices.

♦ ♦ ♦

Apportioning the correct amount of air to coke oven and blast furnace gas is accomplished automatically by a control apparatus recently developed in Germany. The control unit measures separately the volumes of the gases going to the furnaces, transfers them into equivalent heat units, computes the heat furnished by each gas and controls and records the flow of air for combustion in proportion to the total heating value of the mixture.

NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Welder Provides Uniform Welding Current

Lincoln Electric Co., Cleveland, has announced the development of a new welder rated at 40 volts. The unit is equipped with dual control which permits independent regulation of current and voltage. Since with shielded arc welding reversed polarity is used widely, the welder, shown in the illustration herewith, is designed with a reversible voltage control which actually reverses the direction in which the current is generated. This innovation eliminates the shifting of cable connections to change the polarity of the welding current.

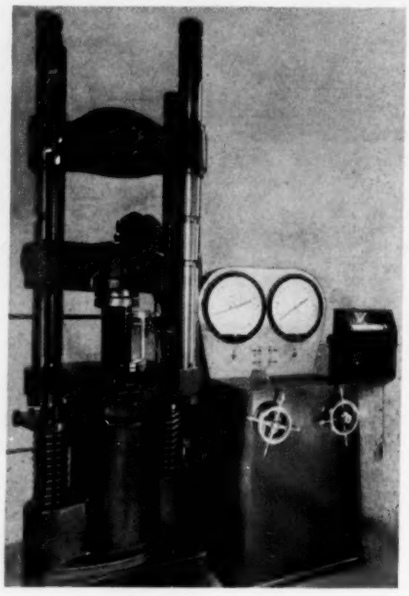
The reversible voltage control is operated by turning a small lever mounted on the front of the control panel. By putting this small lever in the neutral position no voltage is generated so that no current can flow through the welding leads. Also a center reading volt ammeter is mounted on the control panel which immediately indicates whether the machine is operating with positive or negative polarity, as well as volts and amperes.

Lincoln Shield-Arc welder built in 300, 400 and 600 ampere sizes

◆

Stress-Strain Recorder Is Highly Sensitive

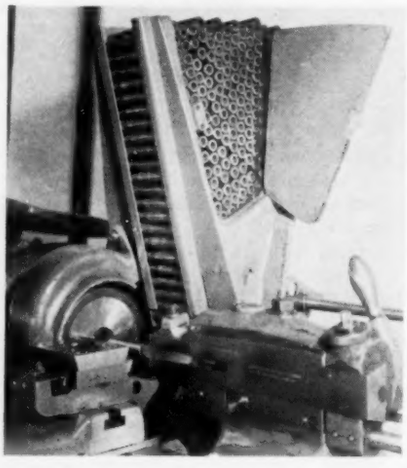
Baldwin-Southwark Corp., Southwark division, Philadelphia, recently announced a stress-strain recorder which is serviceable with all makes of machines employing hydraulic pressures for load measurements. Relatively minor modifications in construction make its accuracy and convenience available to users of other types of testing machines such as pendula or poise-and-lever. The instrument is shown in the accompanying illustration.



Stress-strain recorder developed by Baldwin-Southwark Corp.

Principle of operation is based on that found in the most accurate of recording instruments; namely the use of an outside source of power (a small motor in this case) to operate the moving parts, motion being controlled by the values to be measured.

The Baldwin-Emery stress strain recorder is suitable for research work because of the high degree of precision of the diagrams obtained. It is suitable for routine testing because it is virtually fool-proof and automatic in operation. Extensometer and loading element control the pencil and drum motions. Sensitivity of the unit is such that 0.00001-inch strain in a specimen produces a readable motion of the recording pencil.



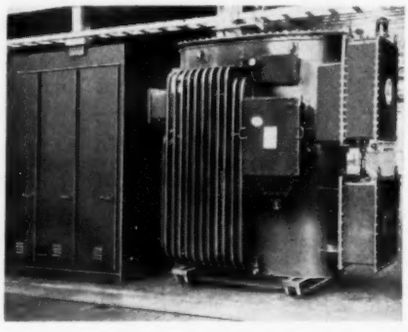
Magazine of increased capacity for Pratt & Whitney automatic lathe

◆

Magazine Increases Loading Capacity of Lathe

Pratt & Whitney Co., Hartford, Conn., recently developed a new magazine to increase the loading capacity of its 1 x 18-inch full automatic lathe. The magazine, shown herewith, is set up for cast iron automotive valve stem guides. Three hundred pieces comprise one full load, representing about 75 minutes of work.

A hinged door is provided on one side of the magazine to facilitate loading. The work is placed with corresponding ends all one way. An agitating device in the bottom of the magazine prevents jamming of work. This new arrangement also can be used for small steel parts.



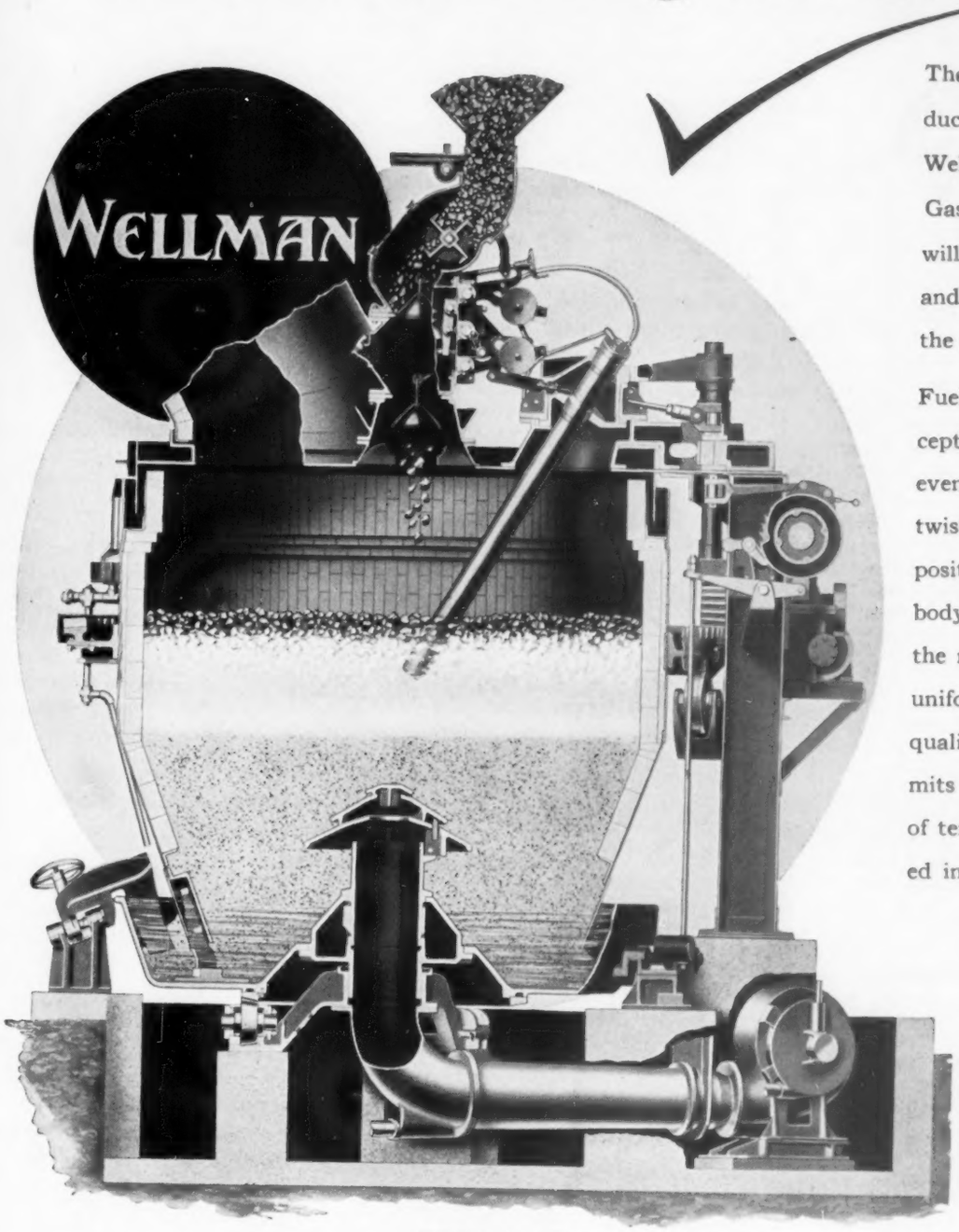
Factory assembled switchgear and transformer designed by Westinghouse

◆

Designs New Switchgear And Transformer Unit

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has announced a factory assembled switchgear and transformer unit for either radial

INSIDE PICTURE
of the Outstanding Gas Producer



The Wellman Gas Producer, equipped with the Wellman Double-Bell, Gas-Tight, Fuel Feed, will give you more gas and better gas without the need of screened coal.

Fuel is fed with exceptional accuracy and evenness. Intermittent twisting of the ash zone positively loosens the body of ashes and assures the making of gas that's uniform in volume and quality—gas that permits the close regulation of temperatures demanded in many industries.

WELLMAN HAS BUILT MORE THAN 1500 MECHANICALLY OPERATED GAS PRODUCERS. More than 470 of the latest type have been installed in the leading plants throughout the world.

Write for Bulletin No. 92

WELLMAN PRODUCTS INCLUDE:

Steel Mill Equipment . . Coal and Ore Handling Equipment . . Car Dumpers, all types . . Williams Buckets and Trailers . . Gas Producers, Flues, etc . . Gas Reversing Valves . . Blast Furnace Skip Hoists . . Safety Stops for Traveling Structures . . Special Cranes . . Port and Terminal Equipment . . Mining Machinery . . Castings and Machine Work to customers' drawings.

THE WELLMAN ENGINEERING CO.

ENGINEERS CONSTRUCTORS MANUFACTURERS

CLEVELAND, OHIO

WELLMAN

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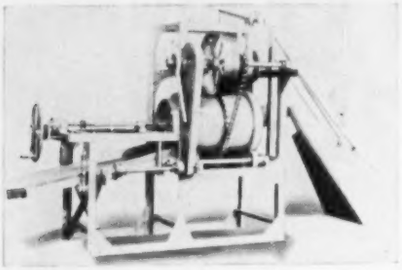


Ransohoff tumbling barrel with vibrating screen for cleaning nails

feeder or primary network systems. The three-phase 1500 kilovolt-ampere (2000 kilovolt-ampere with blowers) transformer can be supplied for high tension transmission voltages up to 34.5 kilovolts and low voltages as required, usually 2300/4000 three-phase four-wire. The high tension pothead compartment includes a three-position disconnecting and grounding switch.

Low tension connections from the transformer are carried to the switchgear through a connecting compartment. The switchgear unit, shown on page 36, comprises six sections, each with front and rear doors, the section next to the transformer being arranged for metering equipment, tripping battery and charger, and operating transformer for the circuit breaker mechanisms. The second section contains the transformer breaker and its disconnecting switches and the other four sections contain breakers for the feeders or network mains.

◆

Introduces New Precision Boring Machine

Ex-Cell-O Aircraft & Tool Corp., 1200 Oakman boulevard, Detroit, has introduced a new model precision boring machine, designated 216A. Overall height of the new unit has been reduced 5 inches from that of the previous model, making the center distance of the individual boring units 42 inches above the floor line. Length of the base has been increased 4 inches and now is 74 inches long. The width, 23 inches, remains the same.

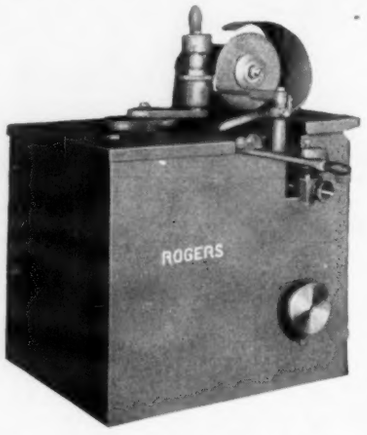
Method of mounting the bridges on the base of the machine also has been changed. Formerly one surface was flat and the other a V-shape. On the new model both surfaces which fit on the base are flat. A T-slot is provided in the bridge rail on the base and a vertical hole is drilled in the bottom of the bridge face to accommodate the T-bolts. A cored hole is provided at the top of each of these holes for the nut, and plenty of room is allowed for tightening with a wrench to lock the bridge securely in position.

The accompanying illustration shows a close-up view of the boring units and holding fixture. One end of the fixture is open and the large end of the rods can be seen. The bracket for supporting each boring unit has been redesigned and mounting lugs for holding these brackets have been eliminated.

◆

Saw Sharpener Has Index or Ratchet Feed Plate

Samuel C. Rogers & Co., 191 Dutton avenue, Buffalo, recently developed an automatic milling or slitting saw sharpener. This bench machine is designed for metal cutting saws 2 to 16 inches diameter. An index or ratchet feed plate is one of the principal features of the unit.



Rogers automatic milling or slitting saw sharpener

The construction, as shown in the accompanying illustration, comprises a rigid, strong, completely enclosed machine. Important moving parts are provided with ample adjustment for taking up wear. Regular equipment includes a 6-inch grinding wheel, internal belting, tooth former, index plate and cone to accommodate usual sizes of saw arbor holes. The unit also is furnished with tight and loose pulleys for belt drive, or with single phase motor for lamp socket or power line connection.

◆

Installs Tumbling Equipment To Clean Nails

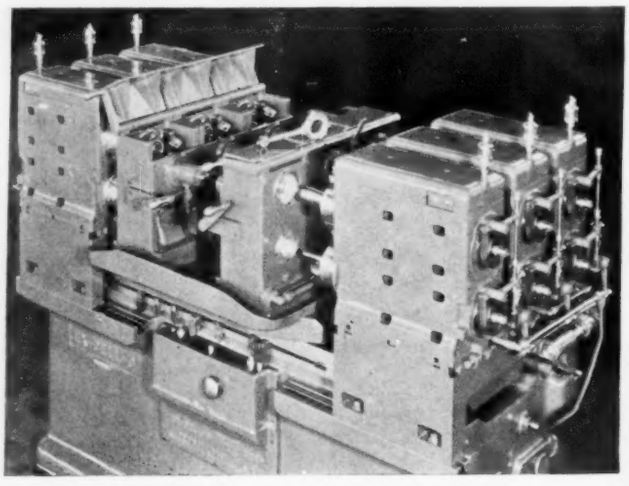
N. Ransohoff Inc., Cincinnati, recently installed new tumbling equipment in the plant of the Tremont Nail Co., Wareham, Mass., supplanting the tumbling units formerly employed to clean cut nails, by a Ransohoff barrel. A special vibrating screen was added to this standard model.

Work is lifted from the floor level by a power-operated loading skip and introduced into the tumbling chamber of the unit shown herewith, where it is tumbled in a small quantity of sawdust. It then is discharged to the vibrating screen which frees the nails from the sawdust and delivers them to kegs.

◆

Signal Device Gives Status Of Temperature

Uehling Instrument Co., Paterson, N. J., has placed on the market a temperature signal device for determining temperature by means of different colored electric lights. When the temperature is within the limits for which the instrument is set a white light will illuminate; when above the limits a red light shows, and when the temperature is below all lights are out.



CLOSE-UP of boring units and holding fixture of new style precision boring machine recently announced by Ex-Cell-O Aircraft & Tool Corp. A straight line effect has been carried out in the design of the entire machine

Structural Lettings Cushion Holiday Slide

Awards Third Highest of 1932—June Pig Iron a New Low—Heavy Steel Makers Withdraw Concessions—Some Steel Being Stocked

AN UNUSUALLY good week in structural orders—third best this year—and moderately-brisk specifying against expiring hot-rolled strip and cold-finished bar contracts, prompted by new pricing methods which entail an advance for many buyers beginning with the third quarter, tempered the descent of the steel industry into the July 4 valley.

Some producers closed June 30 instead of waiting for July 2. A few were to resume July 5, some July 11, others will wait for orders to accumulate. It is significant of the lean condition of consumers' stocks that finishing mills of many producers will be reopened before open-hearth departments to maintain the necessary continuous—though slender—movement of finished material.

For the week ended July 2, steelmaking operations were no higher than 14-15 per cent, compared with 17 the week preceding and establishing a new low not only for this depression but also for modern steelmaking. Considering the uncertainty of resumption, the week ended July 9 may turn in an average as low as 13 per cent.

Pig iron production is on almost an exact parity with steel, the rate for June being 14.2 per cent. At 20,888 gross tons daily, June developed a 17.3 per cent loss from the 25,282-ton daily rate of May. For the month, total output was 626,651 tons, against 783,769 tons in May. In June, 1931, the daily rate was 54,599 tons and the total 1,637,998 tons. For the first half of 1932, pig iron output is 5,165,165 tons, a scant half of the 11,098,122 tons of a year ago. Active stacks June 30 numbered 48, a net loss of six in the month.

Contrary to the theory that expanding business must be a concomitant of rising prices, producers of heavy-finished steel are assiduous in narrowing their lists of preferential customers. Many users of structural shapes and plates, heretofore enjoying a differential of $2 per ton, are now being quoted the full 1.60c, Pittsburgh.

Bar mills also are making headway in applying a $3 extra for forging quality. Hot-rolled strip appears more firmly on the new 1.45c, Pittsburgh, base. Sheets still show variations. Warehouses in all centers are adjusting extras on cold-finished steel in conformity with new mill extras. Other than in scrap, which is generally weaker, the only change in raw materials is a 50-cent reduction in coke at Birmingham.

Over half of last week's structural awards, totaling 29,533 tons, is accounted for by two projects—10,400 tons for the department of justice building in Washington and 8800 tons for a New York Central railroad viaduct in New York. Pending work, largely public construction, remains large. On the Pacific coast, active projects aggregate 37,000 tons. Concrete bar demand and inquiry are extremely light.

Coincident with the turn of the quarter, buying for inventory has made its first appearance in the market in many weeks. Barrel manufacturers, it appears, depleted their stocks of sheets in fabricating containers for oil in anticipation of the new federal tax. It was the buying of small jobbers that gave a slight spurt last week to strip mills. Tin plate mills, while dragging, are at 55 per cent, far ahead of the rest of the industry. The Gold Dust Corp. is reported to have closed on its inquiry for 25,000 base boxes of tin plate.

June was the second month this year to fail to produce any freight car buying. The first half year total of freight car orders is 359, against 6044 a year ago. An eastern carrier has released some rails and fastenings to a Chicago mill.

STEEL's composite of iron and steel products is unchanged at $29.52, as is the finished steel composite at $47.71. But the scrap composite continues to sink, easing 13 cents to $6.33.

Composite Market Averages

	July 2	June 25	One Month Ago June, 1932	Three Month Ago April, 1932	One Year Ago July, 1931	Ten Years Ago July, 1932
Iron and Steel Composite	$29.52	$29.52	$29.54	$29.75	$31.05	$37.50
Finished Steel Composite	47.71	47.71	47.64	47.62	48.68	53.74
Steelworks Scrap Composite	6.33	6.46	6.62	7.76	8.70	14.87

Iron and Steel Composite:—Pig iron billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	July 2, 1932	June 1932	April 1932	July 1931
PIG IRON				
Bessemer, del., Pittsburgh	$15.76	15.95	16.76	18.26
Basic, valley	14.00	14.50	15.00	17.00
Basic, eastern del., eastern Pa.	14.50	14.50	15.00	16.75
No. 2 foundry, del. Pittsburgh	15.76	16.01	16.26	18.26
No. 2 foundry, Chicago	16.00	16.00	16.00	17.50
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	18.00	18.00	18.00	18.00
**No. 2X, Eastern del. Phila.	14.76	14.76	15.66	17.51
Malleable, valley	14.50	14.50	15.50	17.00
Malleable, Chicago	16.00	16.00	16.00	17.50
Lake Superior, charcoal, del. Chi.	23.04	23.04	23.04	27.04
Gray forge, del. Pittsburgh	15.63	15.63	16.13	17.63
Ferromanganese, del. Pittsburgh	73.24	74.99	80.24	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

COKE				
Connellsvile, furnace, ovens	2.00	2.00	2.25	2.40
Connellsville foundry, ovens	3.00	3.00	3.25	3.25
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	29.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.00
Billets, open-hearth, Pittsburgh	26.00	26.00	27.00	29.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	July 2, 1932	June 1932	April 1932	July 1931
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.89
Iron bars, Chicago	1.65	1.65	1.70	1.70
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.75	1.75	1.75	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.79½	1.79½	1.79½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal,, Pitts.	1.70	1.70	1.70	1.85
†Sheets, No. 24, hot, ann., Pitts.	2.20	2.20	2.20	2.40
Sheets, No. 24, galvan., Pitts.	2.85	2.85	2.85	2.90
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
†Sheets, No. 24, hot ann., Chi.	2.35	2.35	2.35	2.55
Sheets, No. 24 galvan., Chi.	3.00	3.00	3.00	3.00
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.85
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$8.75	9.00	10.20	10.50
Heavy melting steel, eastern Pa.	6.25	6.25	7.20	8.55
Heavy melting steel, Chicago	5.50	5.60	6.55	8.50
No. 1 wrought, eastern Pa.	6.25	6.25	9.50	9.75
No. 1 wrought, Chicago	4.75	4.75	5.85	8.25
Rails for rolling, Chicago	7.50	7.75	8.90	10.50

Sheets

Eastern Mill Operations Up 5 Points—General Volume of Business, However, Is Smaller

SHEET PRICES, PAGE 41

Pittsburgh—Sheet shipments and specifications in the past week continued at the low point reached the week prior. For one mill this marks the lowest two weeks' period in its history, never before reached even during strikes. A fairly sizable number of small orders are noted. Prices on some grades continue irregular, and there has been no effective result from efforts to stabilize some prices. Galvanized sheets in this district are fairly steady at 2.85c, but concessions are reported in some outside districts. Black sheets are 2.20c; and blue annealed 1.70c. Mill operations barely average 15 per cent.

New York—Apart from a little routine buying, the local market is at a standstill, with prices unchanged. Allegheny Steel Co., Brackenbridge, Pa., is low on 21,120 pounds of 18-8 corrosion resisting steel sheets, 0.109-inch thick, for the navy at $7044.22 f.a.s. vessel, pier, New York, or $7158.91, f.a.s., San Francisco. Material is for trans-shipment to Pearl Harbor, T. H.

Philadelphia—Sheet production in the East last week was at close to 40 per cent of rated capacity, or about 5 points higher than the recent average. This was largely because of the desire to convert unshipped orders on books into bills receivable. Manufacturers of roofing, gutters and spouts are buying somewhat larger tonnages. Consumption at the plant of the local automobile body builder has been temporarily restricted by directions from the Ford Motor Co. to withhold shipments until after July 4.

Youngstown, O.,—Sheet mills closed last Thursday or Friday night in anticipation of July 4. While a few mills with urgent specifications may reopen July 5 most of them will remain idle this week.

New business continues to taper. Books have been opened for third quarter at recent levels.

Cleveland — Barrelmakers who used up their stocks in recent productions, mildly stimulated by demand for barrels in anticipation of an increase in oil prices, have come into the market for more sheets. Occasional carload orders also are received from refrigerator manufacturers. Furniture sheet requirements are light. Orders from the automotive industry to nearby sheet mills have held up well. The Fisher Body Co.'s local plant operated four days last week.

Cincinnati—Production schedules at local sheet mills disclose slight change. New bookings are for immediate needs, with demand diversified.

Chicago—Sheet demand continues to contract slowly. Consumers are placing only small lots for immediate needs and lack of interest in future requirements is indicated by the fact that one producer only now is issuing formal announcement of third quarter prices. Quotations are unchanged for that period.

St. Louis—New orders and specifications for sheets are light. The larger consumers apparently are covered, and little interest is noted in the current market.

Birmingham, Ala.—Sheet production is at minimum. Demand continues limited to small lots.

San Francisco — Wheeling Steel Corp. has been awarded 62,800 pounds of galvanized steel sheets at $1884.04, delivered, Mare Island navy yard, and Apollo Steel Co. booked 28,400 pounds for the same point, at 3.28c, delivered. Bids close July 12 on 52,300 pounds of corrugated galvanized steel sheets, 0.031 and 0.050 inches thick, mainly 27½ x 144 inches, for the Mare Island navy yard, bids to be taken f.o.b. and delivered.

Current Finished Steel Prices

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, del.	1.70c
New York, del.	1.90c
Birmingham, base	1.70c
Philadelphia, del.	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, del.	2.01c
New York, del.	2.05c
St. Louis, delivered	2.07½c
Birmingham	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.20c
Gary, Ind. Harbor, base	2.30c
Chicago, del.	2.35c
New York, del.	2.55c
Philadelphia, del.	2.51c
Birmingham, base	2.35c
St. Louis, del.	2.57½c
San Francisco, c.i.f.	2.85c

GALVANIZED NO. 24

Pittsburgh, base	2.85c
Gary, Ind. Harbor, base	2.95c
Chicago, del.	3.00c
Philadelphia, del.	3.16c
Birmingham, base	3.00c
St. Louis, del.	3.22½c
San Francisco, c.i.f	3.50c

AUTOMOBILE NO. 20

Pittsburgh, base	2.80c to 2.90c

FURNITURE

Pitts., No. 10 heavy	2.55c
Pitts., No. 20 light	3.15c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.40c to 2.50c
Gary, base	2.50c to 2.60c
St. Louis, del.	2.77½c to 2.82½c

HEAVY COLD ROLLED NO. 10

Pittsburgh, base	2.25c
Gary, Ind. Harbor, base	2.35c
Chicago, del.	2.40c
Philadelphia, del.	2.56c
New York, del.	2.60c
St. Louis, del.	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.75c
Gary, Ind. Harbor, base	2.85c
Chicago, del.	2.90c
Philadelphia, del.	3.06c
New York, del.	3.10c
St. Louis, del.	3.12½c

TIN AND TERNE PLATE
Per 100-pound box, Pittsburgh

Tin plate, coke base	$4.75
Long ternes, 24, unassort.	3.00c

Gary, Ind., base 10 cents higher

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing, (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
*Buffalo, del.	1.85½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, del.	1.97½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.75c
New York, del.	1.87c
Boston, del.	2.00½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, del.	1.91c
New York, del.	1.90c
Boston, del.	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.30c

IRON

Chicago, base	1.65c
New York, delivered	1.85c to 1.95c
Philadelphia, delivered	1.86c to 1.96c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Pitts., stock lengths, mill	1.60c
Chi., billet	1.60c to 1.70c
Chi., rail steel	1.45c
Chi., rail steel, road, bridge and culvert	1.45c
Philadelphia, cut lengths	2.06c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Min. 10,000 lbs. of kind and grade

Pittsburgh	1.70c
Chicago, Buff., Cleveland	1.75c
Detroit	1.90c
Eastern Michigan	1.95c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to 6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

(Differentials to various classes of consumers)

S.A.E.	Alloy Diff.	4600 .20 to .30 Mo. 1.25-1.75 Ni. 1.05
2000	0.25	5100 .80 - 1.10 Cr. 0.45
2100	0.55	
2300	1.50	51.00 Cr. spring 0.20
2500	2.25	
3100	0.55	6100 bars 1.20
3200	1.35	6100 Spring 0.95
3300	3.80	Cr., Ni., Van. 1.50
3400	3.20	Carbon Van. 0.95
4100 .15 to .25		9250 (flats) 0.25
Mo.	0.50	9250 (rds.,sq.) 0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide, Pitts.	1.45c to 1.50c
Do, Chicago	1.55c to 1.60c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
Cold-roll, strip, Pitts., Cleve.	2.00c
Worcester, 3 tons over	2.20c

Rivets

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleve.	70, 10 and 5 off

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$32.00
Light rails, Chicago	$34.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.60c
Spikes, boat, barge, Pitts.	2.90c
Track bolts, Chicago	3.50c
Do, standard, jobbers	73 off list
Tie plates, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off
Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off
Headless set screws ..... 75-10 off
Upset, larger than 1 in ..... 75-10 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do. less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Bars

Demand Receding Slowly—Auto Needs Decrease—Railroad Buying Continues Unfavorable

BAR PRICES, PAGE 41

Chicago—Soft steel bar demand still is tending downward slowly, specifications for automotive use showing further recession. Miscellaneous buyers are ordering cautiously and although 1.70c, Chicago, is tested by only small lots, it is fairly steady. Prospective fall schedules of farm implement builders are uncertain in view of general conditions, and the outlook for heavier buying by railroads continues unfavorable. Rail steel bars are holding at 1.50c, Chicago Heights.

Philadelphia—Demand for steel bars is slow. One mill has had a slight increase lately but all others appear to be having smaller bookings than at any time recently. The market continues firm at 1.60c, base Pittsburgh, equivalent to 1.91c, delivered Philadelphia. Forging bars are selling in small lots at extras of $3 for forging quality and $5 for special forging quality.

Pittsburgh—Producers were firm in their efforts to obtain the commercial forging extra of $3 a ton beginning third quarter and were successful in applying this to specifications after July 1. Carbon steel bar demand still is restricted, however, and the volume at present is considerably under moderate proportions. However, the 1.60c base price is general.

Cleveland—Some good specifications for commercial forging bars were brought out during the week owing to the new price set-up effective July 1. Commercial forging bars now are 1.70c, base, Cleveland. This clarifies the situation with respect to commercial forging bars, as buyers in some instances have been taking ordinary commercial bars for forging. The mills now assume the responsibility for supplying this class of bars. Guaranteed forging quality bars remain at 1.80c, and ordinary soft steel commercial bars, 1.65c, base, Cleveland. Small shapes on the bar card now are 1.65c, base, Cleveland.

Cold-Finished Orders in Month-End Upward Surge

Cold Finished Prices, Page 41

Pittsburgh — Orders for cold-finished steel bars improved perceptibly last week, just before the July 1 deadline. These specifications are for shipment during July at the old price basis and this week marks the beginning of spot transaction at 1.70c, Pittsburgh. The increased ordering last week came largely from smaller jobbers, who are laying in stocks.

Tin Plate Operations Hold; 25,000 Boxes Placed

Tin Plate Prices, Page 41

Pittsburgh—Tin plate operations, holding at 55 per cent last week, still left considerable to be desired, although this branch of the industry is operating at a better rate than other finishing departments. Independent tin mills are operating at a wide range. Considerable black plate is stocked at several plants.

New York—The Gold Dust Corp., this city, is reported to have closed on approximately 25,000 base boxes of tin plate for second half.

Ferroalloys Steady; Some Inquiries Out

Ferroalloy Prices, Page 48

The market for ferroalloys continues to reflect the low rate of operations in the steel industry. A few rush orders were received by some sellers during the past week for material to be used in open-hearth melts prior to the general curtailment in steelmaking over July 4. Ferromanganese holds at $68, duty paid, and spiegeleisen at $25, furnace, for the 19 to 21 per cent grade. Ford Motor Co. is inquiring for 60 tons of silico manganese for August and September shipment, and 950 tons of 15 to 16 per cent ferrosilicon for third quarter. Norfolk navy yard will open bids shortly on 25,000 pounds of 50 per cent ferrosilicon.

Plates

Pipe Line Jobs Feature Eastern Market—3300 Tons Placed—Hoover Dam Award Is Delayed

PLATE PRICES, PAGE 41

New York—Plates are firm at 1.70c, base, Coatesville, Pa., with sellers declaring intention to eliminate all concessions to preferential buyers. Bids on a tonnage for the New York Central railroad, opened during the week, were as follows: Otis Steel Co., 1.60c, Cleveland; Weirton Steel Co., 1.754c, Youngstown, O.; Youngstown Sheet & Tube Co., 1.60c, Youngstown; Inland Steel Co., 1.60c, Indiana Harbor, Ind.; Granite City Steel Co., 1.70c, St. Louis; Corrigan, McKinney Steel Co., 1.60c, Cleveland; Jones & Laughlin Steel Corp., 1.72c, Youngstown, 1.85½c, West Seneca, N. Y., and 1.60c, Pittsburgh; Central Iron & Steel Co., 1.85½c, Newberry Junction, Pa.; Lukens Steel Co., 1.914c, Newberry Junction, and 1.898c, New York; Carnegie Steel Co., 1.60c, Pittsburgh, for eastern lines; 1.85½c, Pittsburgh, for western lines; Illinois Steel Co., 1.60c, Chicago; Bethlehem Steel Co., 1.84c, Newberry Junction, 1.72c, Youngstown; Alan Wood Steel Co., 1.84c, Newberry Junction. All the foregoing are for third quarter delivery.

Philadelphia — Lettings of pipe lines have been the major development in the plate market here during the past few days. McClintic-Marshall Corp. booked a 30-inch line near Tamaqua, Pa., for the Panther Valley Water Co., subsidiary of the Lehigh Coal & Navigation Co. requiring 3300 tons of plates. Baldwin Locomotive Works booked 200 tons of plate pipe line for Philadelphia. Plate demand generally is smaller. The market continues 1.60c, base, Pittsburgh, or 1.70c, base, Coatesville, the latter being equivalent to 1.7935c, delivered Philadelphia. There are no deviations from this price on any business, so far as known. For the first time in years, structural fabricators are paying the full market price, without any differential under the quoted price. During the past few days third quarter plate contracts at the full price have been placed by certain large fabricators.

Cleveland—Miscellaneous plate orders some days are fairly substantial; volume, extremely low. Business is comprised almost entirely of small lots. Though mills receive some encouragement from consumers, negotiations in a number of instances

have dragged along four or five months. Due to the fact that all stocks are low, and material is wanted promptly, mill operations will be down for less time as a consequence of the July 4 holiday than will open-hearth operations. Plates hold at 1.60c, base, Pittsburgh.

Pittsburgh — Plate orders are no more numerous, and the volume is insignificant. A welded pipe line for Boston will take a fairly good tonnage. Specifications for early third quarter shipment are not improving. The base price of 1.60c, Pittsburgh, is continued.

Chicago—Continued poor activity in tank construction and railroad work leaves the plate market in an almost stagnant condition. Producers look for some increase in operations of car repair shops over the coming quarter, but little change is expected in freight car purchases. Plates nominally are 1.70c, Chicago.

Award of 50,000 to 60,000 tons of plates for Hoover dam, Boulder, Nev., project, may be delayed, as a protest against the award of the general fabricating job to the low bidder will be heard by Secretary Wilbur at Washington, July 5. A threat of patent litigation against the government has been made.

Contracts Placed

3300 tons plates, 30-inch pipe line, near Tamaqua, Pa., for Panther Valley Water Co., subsidiary of Lehigh Coal & Navigation Co., to McClintic-Marshall Corp., Bethlehem, Pa.

265 tons, 24-inch welded steel pipe, East bay municipal utility district, Oakland, Calif., to Berkeley Steel Construction Co., Berkeley, Calif.

200 tons plates, pipe line, Philadelphia, to Baldwin Locomotive Works, Eddystone, Pa., through general contractors, Mazola & Morano, Philadelphia.

Contracts Pending

567 tons, navy, various yards, mainly west coast, Mare Island and Puget Sound, bids July 12. Opening of June 21 on 1245 tons still unplaced.

Unstated tonnage, steel tank and tower, veterans' hospital, Fayetteville, Ark.; W. E. Caldwell, Louisville, Ky., low at $6774.90.

Unstated tonnage, all-welded steel barge, army transport service, Brooklyn, N. Y.; bids July 25.

June Warehouse Selling Is Smaller than May

Warehouse Prices, Page 56

Philadelphia—Effective July 1, jobbers here modified their warehouse prices on cold finished steel. They are now quoting 3.85c base, delivered Philadelphia, on cold-finished flats and squares and 3.35c on rounds and hexagons. They also have changed their chemical analysis extras, which now are the same as those charged by the mills.

Boston—Further adjustment of coldfinished steel prices, effective July 1, also brings jobbers closer in line with mills in charging of extras. Volume is dull.

New York — Cold-finished steel prices out of warehouse have been further adjusted, rounds and hexagons being quoted 3.39c, effective July 1, with 3.60c for flats and squares.

Pittsburgh — Movement of steel products from warehouses in June was lighter than in May and established a new low in tonnage. There has been no change recently in prices. New band and hoop extras are being applied.

Detroit — Demand shows no gain and prices are unchanged, with cold-finished steel at 3.15c for rounds and hexagons and 3.65c for flats, by application of the new mill extras. The former price was 3.17c and 3.67c.

Cincinnati—Warehouses here put into effect, July 1, new quotations on cold-rolled steel, 3.32c on rounds and hexagons, an increase from 3.29c, and 3.82c on squares and flats, an increase from 3.79c. New size extras have been adopted for bands and hoops. Sales are light.

Chicago—Sales showed the usual decline at the end of the month and June was unimproved from May. Warehouses look for little improvement before late summer.

St. Louis—The volume of sales of iron and steel goods from warehouses has receded slightly compared with the average of early June, largely seasonal.

Railroads

Rumored Heavy Rail Tonnage for Pennsylvania Road Erroneous—No Cars Bought in June

TRACK MATERIAL PRICES, PAGE 41

New York—For the second time this year no freight cars were bought by railroads in the United States for an entire month. June brought no orders to builders, the same situation as obtained in April. Comparisons by months in freight car purchases are as follows:

	1932	1931	1930	1929
Jan.	159	100	5,072	13,196
Feb.	35	50	17,027	15,944
March	105	2,166	6,118	12,023
April	0	2,798	1,997	8,205
May	60	20	1,392	7,562
June	0	1,910	998	5,886
6 mo.	359	6,044	32,604	62,816
July	.....	617	1,389	341
Aug.	.....	1,304	1,111	2,854
Sept.	.....	703	576	4,517
Oct.	.....	980	4,116	19,506
Nov.	.....	35	2,621	6,361
Dec.	.....	11	2,729	9,710
Total	.....	10,694	45,146	106,105

Philadelphia—There is no foundation for recent reports of large impending rail purchases by the Pennsylvania railroad. The fact is that several months ago this road formulated a tentative plan for buying about 15,000 tons of rails. However, it has not taken any action and the rails still remain to be bought.

Pittsburgh—Railroad steel specifications for finished steel products and track fastenings are spotty. Tie plates at $37 a ton and spikes at 2.60c are inactive. The rail program for the Pennsylvania railroad in spite of reports to the contrary has not been revised to include a release of 60,000 tons of rails, which was rumored. Instead, the program calls for a maximum of 10,000 tons of rails over the remainder of this year. The local rail mill probably will not group a rolling for some time.

Chicago—Railroad buying of steel products is slow. The first change for the better in operations of car repair shops is noted in the return of the Great Northern shops to full-time and plans for a slight increase in workers early in July. The outlook for large grain crops with expectations for a heavy movement is responsible for the increased activity. Operations of other roads, however, are on a restricted basis. An eastern trunk line has released some rails and fastenings to a Chicago mill. Producers still look for the placing of some emergency rail orders. The car market is dull.

Rail Orders Placed

Panama Canal, 500 tons, 90-pound rail with fastenings, to United States Steel Products Co., bids June 8.

Car Orders Pending

Navy department, Puget Sound, one 55-foot, 30-ton flat car; bids July 12.

Navy, Sunnyvale, Calif., three steel flat railroad cars and one steel box car, bids July 19.

Locomotives Pending

Chief, army engineers, Washington, one 30-ton gasoline-electric locomotive, Midwest Locomotive Co., Hamilton, O., low.

Structural Shapes

Awards Are Heavier, Third Largest of the Year—50,000 Tons for Washington Federal Buildings Now Closed —More Railroad Work Is Developing in East

STRUCTURAL SHAPE PRICES, PAGE, 41

New York—With several of the largest pending contracts placed, outlook for structural steel requirements in the East is less promising. Some large projects remain to be closed, with additional work due to come out this summer including close to 15,000 tons for more construction on the New York Central's west-side project. American Bridge Co., Pittsburgh, took 9000 tons for the loop viaduct for that railroad. Close to 50,000 tons for government buildings now are under contract at Washington, more than 20,000 closing in the past week.

Boston — Structural awards are light, including Maine bridges. Inquiry is also sluggish, limited to a few public works projects.

Philadelphia—Due to releases on old orders, structural shape production and shipments during the past week reflected considerable improvement. Among new jobs pending are a Federal Reserve bank addition, Philadelphia, and two projects for the Pennsylvania railroad. The shape market enters the third quarter in the strongest condition in years from a price standpoint. The firmer price movement which began about three months ago has culminated apparently in a withdrawal by all mills of all preferential prices. The full market price is 1.60c, base, Pittsburgh, on plain standard shapes, or 1.70c, base, eastern mills nearest destination.

Pittsburgh—Since the large government jobs at Washington have been awarded, structural interests are turning their attention to a slightly higher volume of inquiry for highway bridges throughout the midwest. The Huntington W. Va., government engineers will close bids July 30 for a tonnage of structural material for a dam across the Big Kanawha river. Plain material is moving at 1.60c, Pittsburgh, to the average customer.

Cleveland—The chief development in the structural shape market here is the firming up of prices to fabricators. The latter have been notified that beginning July 1 all preferential prices below 1.60c, base, Pittsburgh, have been abolished. Fabricators who recently were able to obtain shapes at 1.50c have failed to place orders in the last few days at less than 1.60c, the general market for plain shapes. Bar-card sizes of small shapes now are 1.65c, base, Cleveland. Fabricating work is the lowest of modern times, in the experience of several interests. Hunkin-Conkey Construction Co., Cleveland, is low for the Tompkins county courthouse, Ithaca, N. Y.

Buffalo—Prospects for large coverage of structural shape requirements in the third quarter continue to brighten here. Bids were taken at Albany, N. Y., June 30 for the Buffalo armory, for which about 2200 tons will be required.

Chicago—New structural projects consist principally of bridges, bids being taken on a number in midwestern states. Backlogs of most fabricators are at a low level and competition for the small volume of business appearing still is bringing considerable pressure against prices. Plain material continues 1.70c, Chicago. Although about 2500 tons of piling is required for the government dam at Alma, Wis., on which an injunction holding up the work recently was dissolved, the case is being appealed and action is expected to be deferred until fall.

Contracts Placed

11,000 tons, office building, department of labor and interstate commerce commission, Washington, to McClintic-Marshall Corp., Bethlehem, Pa., James Stewart & Co. Inc., New York, contractor. Original general contract revoked, and unconfirmed report of steel award of 12,000 tons corrected.

10,400 tons, building, department of justice, Washington, to McClintic-Marshall Corp., Bethlehem, Pa.; George A. Fuller Co., New York, general contractor.

8800 tons, west side viaduct, New York Central railroad, New York; 8000 tons to be fabricated by American Bridge Co., Pittsburgh, and 800 tons to McClintic-Marshall Corp., Bethlehem, Pa. American Bridge Co.'s share includes 1500 tons wide-flange material, remainder plain structural shapes.

1200 tons, bridge, Seneca, Ill., to Wisconsin Bridge & Iron Co., North Milwaukee, Wis.

900 tons, Horatio street viaduct, New York Central railroad, New York, to McClintic-Marshall Corp., Bethlehem, Pa.

775 tons, General Motors Corp. building for Chicago Exposition of Progress, to Gage Structural Steel Co., Chicago, on revised plans; previously reported to Reuter Bros., Chicago.

600 tons, mainly piling, pier, Cape Cod canal, Bourne, Mass., to Carnegie Steel Co., Pittsburgh.

520 tons, postoffice, Paterson, N. J., to Bethlehem Fabricators Inc., Bethlehem, Pa., through Wallace Construction Co.

500 tons, two bridges, Kentucky, for Illinois Central railroad, to American Bridge Co., Pittsburgh.

400 tons, state bridge, Albany district, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa.

350 tons, highway bridge, Jasper county, Missouri, to Virginia Bridge & Iron Works, Roanoke, Va.

340 tons, Garwood ferry bridge, Stockton, Calif., to Moore Dry Dock Co., Oakland, Calif.

320 tons, piling, Muskegon, Mich., for Standard Oil Co. of Indiana, to Inland Steel Co., Chicago, through Great Lakes Dredge & Dock Co.

300 tons, postoffice, Jackson, Mich., to Whitehead & Kales Co., Detroit.

300 tons, highway bridge, Marion county, Missouri, to Vincennes Bridge Co., Vincennes, Ind.

300 tons, highway bridge, Taylor county, Wisconsin, to Milwaukee Structural Steel Co., Milwaukee.

300 tons, substation, at Lachine Locks, Que., for Montreal Light & Power Co., to Dominion Bridge Co., Lachine Locks.

250 tons, Alling Corp., garage, Newark, N. J.; Standard Oil service station, Newark; and Harris Realty Co. store, Montclair, N. J., to Albert Smith & Sons Inc., Newark.

250 tons, Cheyenne river bridge, South Dakota, to Pittsburgh-Des Moines Steel Co., Des Moines, Iowa.

230 tons, state bridge, Jefferson county, New York, to Luten Bridge Co.

227 tons, Pennsylvania railroad bridge, Norwood, O., to American Bridge Co., Pittsburgh.

225 tons, bridges in Ohio for Pennsylvania Railroad Co., in Contract No. 12, to American Bridge Co., Pittsburgh.

215 tons, powerhouse, Granite Falls, Minn., to Minneapolis-Moline Power Implement Co., Minneapolis.

210 tons, two state bridges Fallon and Custer counties, Montana, to Minneapolis-Moline Implement Co., Minneapolis.

200 tons, bridge, Henderson county, Ill.,

Awards Compared

	Tons
*Awards, week ended July 2	29,533
Awards, week ended June 25	10,262
Awards, week ended June 18	12,672
Awards, this week in 1931	29,199
Av. weekly awards, 1931	34,236
Av. weekly awards, 1932	15,996
Av. weekly awards, June	20,034
Awards, to date, 1931	1,031,646
Awards to date, 1932	431,905

*Does not include 11,000 tons for department of labor and interstate commerce building, Washington, reported prematurely in week of June 13.

to Vincennes Bridge Co., Vincennes, Ind.

200 tons, bridge, Erie railroad, Deposit, N. Y., to American Bridge Co., Pittsburgh.

200 tons, telephone exchange building, Brookline, Mass., to New England Structural Co., Everett, Mass.

200 tons, clarifying plant, Ward's Island, N. Y., to Lackawanna Steel Construction Corp., Buffalo.

150 tons, state bridge, Washington county, New York, to Lackawanna Steel Construction Co., Buffalo.

140 tons, highway bridge, Sauk county, Wisconsin, to Lakeside Bridge & Steel Co., North Milwaukee, Wis.

134 tons, truss spans, Prairie du Sac, Wis., to Lakeside Bridge & Steel Co., North Milwaukee, Wis.

125 tons, Pennsylvania state bridge, Mifflin county, Pa., to Jones & Laughlin Steel Corp., Pittsburgh.

117 tons, shapes and bars, inspection station, San Ysidro, Calif., (80 shapes) National Iron Works, San Diego; (37 bars) Pacific Coast Steel Co., Los Angeles, Robert E. McKee, Los Angeles, contractor.

115 tons, shelter for national park service, Coolidge, Ariz., to Virginia Bridge & Iron Co., Roanoke, Va.

115 tons, bridge over Clear Creek, Yavapai county, Ariz., to unnamed interest.

105 tons, restaurant, Waldorf System, Boston, to New England Structural Steel Co., Boston.

100 tons, state bridge, Angelica, N. Y., to Lackawanna Steel Construction Co., Buffalo.

100 tons, state bridge, Maine, to Lackawanna Steel Construction Co., Buffalo.

Contracts Pending

7500 tons, postoffice, Newark, N. P. Severin Co., Chicago, general contractor.

5000 tons, postoffice, Minneapolis; N. P. Severin Co., Chicago, low at $2,269,900.

4000 tons, auditorium, St. Louis; Boaz-Kiel Construction Co., St. Louis, low for general contract, at $3,892,823.

1400 tons, and 175 tons piling, state highway route 29 bridge, Newark, N. J.

2000 tons, postoffice, Rochester, N. Y.; bids at Washington, July 6.

1200 tons, Medical building, University of California, San Francisco; bids soon.

1200 tons, bridge, Channahon, Ill.; bids July 12.

1100 tons, bridges, Oklahoma.

1100 tons, 400 for roller top dam gate and 700 for dam, Big Kanawha river, West Virginia; bids July 30, United States engineers, Huntington, W. Va.

1000 tons, apartment, Park avenue, New York.

800 tons, approximately, shapes, plates, bars, two lighthouse tenders, department of commerce, Washington; bids, July 7.

800 tons, maternity hospital, New York.

750 tons, shapes and plates, Pine Canyon dam, Pasadena, Calif.; bids soon.

725 tons, bridge, Marseilles, Ill.

670 tons, Pennsylvania railroad bridge, Farmingdale, Pa.; plans being drawn.

650 tons, bridges, Missouri.

600 tons, postoffice, Bridgeport, Conn., Goath & Goss Inc., Chicago, low.

550 tons, postoffice, Lynn, Mass.; bids Aug. 10.

500 tons, Federal reserve bank addition, Tenth and Chestnut streets, Philadelphia; bids July 11.

450 tons, South river viaduct, Old Bridge, N. J.

325 tons, postoffice and courthouse, Las Vegas, Nev.; Rosen & Fischel Inc., low on general contract, June 28.

300 tons, two highway bridges, Indiana.

260 tons, superstructure, William E. Dever crib, Chicago; bids July 6.

247 tons, Tompkins county courthouse, Ithaca, N. Y., Hunkin-Conkey Construction Co., Cleveland, low.

200 tons, postoffice, Longview, Wash.; A. M. Lundberg, St. Louis, low on general contract.

170 tons, postoffice, Salem, Mass., Louis Cadario & Sons, Boston, general contractor.

125 tons, veterans' hospital, Batavia, N. Y.

125 tons, postoffice, Niagara Falls, N. Y.; bids soon.

120 tons, bridges, Erie county New York; bids soon at Buffalo.

100 tons, postoffice, Sandsville, N. Y.; bids soon.

100 tons, bridges, Wisconsin, Indiana and Oklahoma.

100 tons, postoffice, Seneca Falls, N. Y.; bids soon.

Unstated tonnage, coal handling plant, Pennsylvania railroad, Baltimore; plans being drawn.

June Iron Ore Shipments Show Further Curtailment

Iron Ore Prices, Page 48

Cleveland—Vessel shipments of Lake Superior iron ore in June totaled 233,557 tons, bringing the movement for the season to July 1 to 388,456. This compares with 5,753,259 tons to July 1, 1931. The United States Steel Corp.'s vessel subsidiary has started out two ore carriers. Practically nothing is transpiring in the open market, interest being centered on shipments on long-term contracts. The Ford Motor Co. has not yet issued an inquiry.

Concrete Bars

Public Building and Highway Work Predominating in Market—2500 Tons for St. Louis Auditorium Active—Buyers Slow to Close—Awards for Week Shrink

REINFORCING BAR PRICES, PAGE 41

New York—While a fair tonnage of reinforcing steel bars is pending, buyers are slow to close. Public works, highways and bridges, make up the bulk of demand. Prices are 1.60c, Pittsburgh, but are inclined to be easy.

Boston—Fresh inquiry for reinforcing steel totals several hundred tons, including a telephone building at Cambridge, Mass., and a post office at Bridgeport, Conn. Highway and bridge requirements are slightly more active, although awards are small. Prices are easy and mixed, still influenced by foreign and rerolled material.

Buffalo—An inquiry for 300 tons of reinforcing bars for the state armory building here, is the largest prospective job. Road material is fairly active.

Pittsburgh—Shipments of reinforcing steel bars in June were level with those of May, made up entirely of small lots. Some Pennsylvania state highway work is being figured. A 250-ton bridge in New Jersey is active. Prices of 1.60c for mill lengths continue into the third quarter.

Cleveland—Concrete bar awards here continue of minor proportions, and volume is smaller. One job, requiring 300 tons, for the easterly sewage disposal plant is pending; others are for less than 100 tons. Plain or deformed bars to faricators are held at 1.50c, base, Cleveland.

Chicago — A scattering of state road and bridge projects and government hospitals and post offices represents most of the activity in the reinforcing bar market. Prices are slightly better maintained at 1.60c for billet bars, and 1.45c for rail steel.

Birmingham, Ala. — Several tentative contracts requiring concrete bars give encouragement. Production and shipment continues in small volume.

Awards Compared

	Tons
Awards, week ended July 2	**843**
Awards, week ended June 25	**5,601**
Awards, week ended June 18	**2,310**
Awards, this week, 1931	**9,072**
Av. weekly awards, 1931	**6,808**
Av. weekly awards, 1932	**4,270**
Av. weekly awards, June	**4,691**
Awards, to date, 1931	**191,896**
Awards to date, 1932	**115,297**

Contracts Placed

2200 tons, agricultural extensible building, Washington, to Sweet's Steel Co., Williamsport, Pa.; erroneously re-

ported in June 27 issue as awarded to Rosslyn Steel & Cement Co., which will, however, assist in servicing job.

315 tons, state bridge over Santiam river, Jefferson, Oregon, to Soule Steel Co., Portland, Oreg.

225 tons, highway work in Los Angeles county, Calif., for United States bureau of public roads, to unnamed interest.

190 tons, buildings at Hoover dam, Boulder City, Nev., to unnamed interest.

113 tons, Panama, Bethlehem Steel Export Co., Bethlehem, Pa.

Contracts Pending

2500 tons, auditorium, St. Louis; Boaz-Kiel Construction Co., St. Louis, low for general contract at $3,892,823.

400 tons, state highway, route 29, bridge, Newark, N. J.

330 tons, railroad crossing at Del Mar, Calif.; bids July 13.

300 tons, state armory, Buffalo; bids at Albany June 30.

250 tons, veterans' hospital, Batavia, N. Y.

225 tons, postoffice, Bridgeport, Conn.; bids in.

200 tons, telephone exchange, Cambridge, Mass.

100 tons, highway work in Washington county, Utah; bids opened.

Pipe

Cast Prices in East Stronger—Milwaukee Closing on 3800 Tons—More Oil Pipe Being Shipped

PIPE PRICES, PAGE 56

Chicago—Cast pipe inquiries are scarce and orders for single carload lots generally represent the maximum in buying. The volume of miscellaneous business has been fairly steady. The 3800 tons of pipe for Milwaukee are expected to be placed shortly, James B. Clow & Sons Co., Chicago, being low bidder. Although the outlook continues poor, early favorable action on the plan for federal financing of municipalities would prove of considerable support to demand, it is believed.

Boston—Cast pipe buying is light and generally in small lots. North Adams, Mass., has bids on about 200 tons. Inquiry is small. Prices show more strength.

New York—Cast pipe prices are firmer. New business has been placed at $2 to $3 higher than recently. Volume is light, in both buying and inquiry. About 250 tons for two state jobs has been placed, also a small tonnage for Yonkers, N. Y.

Pittsburgh—The award of 900 tons for a proposed 8-inch pipe for the Standard Oil Co. of Kansas will be indefinitely postponed as it now develops that the company will use a nearby oil company's line under lease, at least temporarily. Mill operations here reflect to a slight improvement for seamless oil country goods, but welded pipe production has fallen. Demand for standard pipe so far this year probably is 50 per cent under the 1931 period, for one producer.

Birmingham, Ala.—Cast iron pipe production and shipments show no change from the low level reached several weeks ago. Operations are estimated below 40 per cent, with more than 50 per cent of labor employed.

Cast Pipe Placed

400 tons, 3 to 18-inch, Hamilton Field, Calif., to United States Pipe & Foundry Co., Birmingham, Ala.

350 tons, 4 to 8-inch, Bethel, O., to Central Foundry Co., Birmingham, Ala.

250 tons, small sizes, state projects, Bedford Hills and Middletown, N. Y., to United States Pipe & Foundry Co., Burlington, N. J.

175 tons, 10 to 24-inch, class B, Forty-third avenue north, sewer improvement, Seattle, to Pacific Water Works Supply Co., Seattle. (French.)

150 tons, 6 and 8 inch, Aurora avenue improvement, Seattle, to Pacific Water Works Supply Co., Seattle. (French.)

Unstated tonnage, 2400 lineal feet, 6-inch, Eau Claire, Wis., to R. D. Wood & Co., Philadelphia.

Unstated tonnage, 11,500 lineal feet, 4 and 6-inch, Kingsford, Mich., to Traverse City Iron Works, Traverse City, Mich.

Steel Pipe Placed

Unstated tonage, 10 and 16-inch I.D., seamless steel flasks, gas ejecting and recoil cylinders and secondary rammers, four cruisers, navy, to National Tube Co., part of inquiry; at $11,272, delivered various yards; bids May 31.

1500 feet, 20-inch I.D., rivet weld, United States engineer, Jacksonville, Fla., to Gaynor Iron Works, Jacksonville.

Cast Pipe Pending

3800 tons, 24 to 36-inch, Milwaukee; James B. Clow & Sons Co., Chicago, low at $29.08.

200 tons, 6 and 10-inch, North Adams, Mass.; bids in.

115 tons, 6-inch class 150, Upland, Calif., American Cast Iron Pipe Co., Birmingham, Ala., low.

100 tons, 6-inch, Latham's Corner, N. Y.

Machinery

Government Buying Only Feature of Lagging Market

New York—Bulk of interest in machinery and equipment is being supplied by federal government departments, mostly the navy. Bids are in on lists covering close to 40 tools while additional bids are being taken for lathes, drills, milling machines and other tools this week and next. Sales to private industry are light while inquiry augurs nothing in the way of an increase in the next few weeks.

Worcester, Mass.—New England tool building plants are operating on short schedules, some being closed for longer periods than usual over the holiday. Few have backlogs to warrant operations with more than skeleton forces. Sales and inquiry are light, and while government bidding is active, general industry is showing little interest.

Pittsburgh—There is no word of encouragement at present from the steel mill equipment interests and augmenting the absence of orders there is noted a falling off in inquiry for special equipment as well as replacement parts. Machine tool interests report that there has not been a single purchase made in June by the steel industry as against the order for a single coldsaw placed in this district in the entire month of May. Rush Machinery Co. recently received an order for a coal burner from the Edgewater Steel Co.

Cleveland—Immediate outlook in the machinery and equipment fields continues drab, with current business being comprised largely of government needs. Recent bids on equipment for Wright Field, Dayton, O., showed wide discrepancies, indicating apparently that some builders are determined to move machines at any cost.

Chicago—Miscellaneous business being received for machine tools and equipment indicates no change from the extreme dullness prevailing in these markets for a number of weeks. Inquiry generally lacks improvement and orders are made up entirely of small miscellaneous lots. Little hope is entertainerd of any marked increase in purchases by railroad shops in view of the continued quietness in repair work. A few miscellaneous inquiries from railroads are appearing for repair parts, and it is thought that a general upturn in car repair work would develop some equipment business. Although demand for used machine tools is relatively better than for new equipment, this business also is light. The supply of used machinery is fairly large, augmented by a number of auction sales of bankrupt plants recently.

Strip

Users Specify More Heavily at Pittsburgh at Month End—General Buying Is Slower

STRIP PRICES, PAGE 41

Pittsburgh—Hot-rolled strip specifications came into the market in such improved volume late last week that strip mills here were on improved operations through the week-end. This last minute ordering was due to a desire of customers to specify before the July 1 deadline. One interest reports receiving an order for 160 tons of one hot-rolled size but the general run of orders is much smaller. Stainless strip was better on some Ford Motor Co. accessory orders last week. The market for cold-rolled is light but 2.00c, Pittsburgh, applies and the new 1.45c base for hot-rolled in carloads appears generally quoted.

New York—Hot strip sellers are holding at 1.45c, Pittsburgh, on carlots with little to test the market. Cold strip is nominally 2.00c, Pittsburgh.

Cleveland—June business for some makers of hot and cold-rolled strip was equal to that of May; with others volume was slightly lower. Orders recently have shown a tendency to diminish in size and number, though demand from the automotive industry is holding up fairly well. Hot-rolled is 1.45c, base, Pittsburgh, for the larger buyers; 1.50c, for the smaller. Cold-rolled holds at 2.00c, base, Cleveland.

Chicago—Specifications for both hot and cold-rolled strip steel are moderating slightly, with operations only slightly above 15 per cent. The new price of 1.60c, Chicago, for all widths has proved generally acceptable although forward buying is light. Cold-rolled strip continues 2.00c, Pittsburgh-Cleveland.

Operations Decline to 14.5 Per Cent, a New Bottom

Pittsburgh—Holiday influence affected the week ended July 2 as much as the current week in steelmaking, the rate for both weeks being about 15 per cent, a drop of five points. The largest interest here, which was at 23 per cent in the week ended June 25, was down to 15 per cent July 2. A small independent has closed its open-hearth department until July 10. One less steelworks blast furnace is active, a Carrie furnace having been banked June 30. The United States Steel Corp. has 3 out of 38 stacks in blast, Jones & Laughlin 3 out of 12, Pittsburgh Crucible Steel 1 out of 2.

Philadelphia—In the last few days of June, rate of production at eastern steel plants moved upward slightly to an average of about 12 per cent, due mainly to releases against old orders for structurals and rails. The July 4 holiday is easing off the rate temporarily. After the holiday, at least one additional open hearth will be lighted by a steel mill which has had no melting capacity for over a month.

Operations, week ended July 2	**14.5**
Operations, week ended June 25	**17**
Operations, week ended June 18	**17**
Operations, one year ago	**34.5**
High for 1932, Feb. 6	**28.5**
Low for 1932—July 2	**14.5**

Buffalo—Although operations will be irregular this week owing to the holiday, the week may average 16 per cent. Several days in the week ended July 2 enough open hearths were active to make a 24 per cent rate. At the weekend, shutdowns of three to five days were ordered .

Cleveland—Steel ingot operations for the week ended July 2 averaged 26 per cent, down three points. This week the average will be about 10 per cent. This will be because American Steel & Wire Co., which operated five open hearths, suspended June 30 to remain down until July 11, and the Corrigan, McKinney Steel Co., which operated three last week, will suspend over July 4, to resume on July 5. Otis Steel Co. operated two last week, and will average lower this week. Finishing mill operations also will be suspended for July 4.

Birmingham, Ala.—Steelmaking operations held at about 19 per cent in the week ended July 2, with little change indicated for this week in spite of the holiday. The Tennessee company has four open-hearth furnaces on, Gulf States two intermittently.

Chicago—Although the holiday period has some influence upon steel plant operations, the effect is expected to be somewhat less than usual due to the already depressed rate of schedules. Ingot production, however, declined slightly during the past week to around 14 per cent, and is expected to average no higher than that this week. Blast furnaces are running light, but the number in blast remains at eight of the 36 steelworks stacks in the district.

Third Quarter Bolt, Nut Needs Are Well Covered

Bolts, Nuts, Rivets Prices, Page 41

Pittsburgh—Specifications for bolts and nuts are not sufficient to increase production much over 15 per cent. However, demand is steady at that level as June orders were evenly comparable with May. Over 80 per cent of third quarter contracts have been covered with prices the firmest in many years. Discounts of 75 off for bolts and nuts apply, with 2.25c base on large rivets.

Cleveland—Volume in the bolt and nut market here in June was 10 to 20 per cent less than in May. Prices are firm at 75 off. Some makers report that the price situation today is stronger than in 1929, fewer concessions being offered.

Chicago—Specifications for bolts, nuts and rivets failed to maintain the slight gains noted recently, and activity is low. Railroads and structural shops are taking only small lots and little business is coming from farm implement manufacturers. Third quarter contracts have been distributed and prices generally are steady at 75 off for bolts and nuts and 2.35c, Chicago, for large rivets.

Semifinished Prices Are Extended for Third Quarter

Semifinished Prices, Page 48

All mills which announced a price advance of $2 per ton for sheet bars, billets and slabs for third quarter have recalled the new prices and have decided to extend second quarter quotations for the next three months. Sheet bars, billets and slabs, therefore, remain $26, base, Cleveland, Youngstown, O., and Pittsburgth. Chicago prices hold at $28 for billets and sheet bars. Forging billets are $33, base, Pittsburgh; and wire rods $37. Forging billets at Chicago remain $33, and wire rods, $38. Demand for all semifinished products continues at recent levels, little contracting being done. Eastern furniture spring manufacturers are taking more wire rods for conversion into spring wire.

Raw Material Prices

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$16.00
Pittsburgh, dist. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.50
Philadelphia, delivered	14.26 to 14.76
Virginia furnace	17.50
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90 to 19.40
Buff., all-rail, Newark	17.28 to 17.78
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.40 to 19.90
Buffalo, all-rail, Newark	17.78 to 18.28
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	18.00
Eastern, del. Phila.	14.76 to 15.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila	15.26 to 15.76

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.50
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	16.00
Buffalo fur., local del.	16.50
Eastern Penna., delivered	16.13 to 19.41
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	14.50 to 15.00
Pittsburgh, delivered	15.13 to 16.13
Eastern Penn., del.	14.50 to 15.00
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.00
Pittsburgh district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19.50; 15—$23 to $24.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.00 to 2.25
Connellsville foundry	3.00 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens	7.00
New England, del.	10.00
St. Louis, del.	7.75
Birmingham, ovens	4.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports	
Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.25 to 10.50
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50% (nom.)	22 cents
Brazilian, 46-48% (nom.)	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet, Ill., East Chicago, Ind.	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$61.50

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bessemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	28.00
Forging, Chicago	33.00 to 34.00
Forging, Pittsburgh	33.00
Forging, Philadelphia	36.75 to 37.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82%, tidewater, duty paid	$68.00
Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	25.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(Spot prices, $5 a ton higher.)	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	68.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $4.25 unitage	91.00
Ferromolybdenum, stand. 50-60 per cent. per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	.80

†Carloads. Differentials apply to quant.

Fluorspar

85 and 5 per cent grade

Washed gravel, domes., net ton, del. Pitts. equiv.	$20.31
Washed gravel, import duty paid tide. gross ton	19.50

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ILLINOIS STEEL COMPANY
MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY
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THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & R.R. COMPANY
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—Columbia Steel Company, San Francisco, Calif.

Export Distributors—United States Steel Products Company, New York, N. Y.

Pig Iron

Orders Frequent, but Small—Toledo and Jackson, O., Furnaces Blown in—Prices Easy

PIG IRON PRICES, PAGE 48

Pittsburgh—Last week went down as one of almost complete inactivity in the pig iron market. There were neither sales nor shipments of more than a few carloads. No early prospect is seen for any large inquiry. The inroads of Cleveland district furnaces still are felt here, especially on a transaction requiring a single car of No. 3X foundry iron. No merchant furnace is operating in this or the valley district. The price of $15 for all grades apparently best represents the market here.

Buffalo—Three blast furnaces in this district continue to make iron, two being on basic and operating only part time. Some hope is expressed for a slight imporvement in the near future.

New York—The market is quiet, with prices easy at $14 to $14.50, furnace, for Buffalo iron, and $13.50 to $14, furnace, for eastern Pennsylvania iron. Current buying is comprised almost entirely of scattered carlots.

Boston—A slight increase is reported in the movement of Buffalo iron by barge to railroad shipping points and to New England. Inquiry is light and prices are mixed and untested on sizable lots. The local furnace range continues $16 to $17, furnace, with Dutch iron offered at $14.50. Providence, R. I. Some Indian iron is reported on the way and sold at $16 dock.

Philadelphia—Small sales continue to reflect current activity in the pig iron market here. Several small lots of eastern Pennsylvania foundry were sold at $13.50 base furnace, with one company quoting a minimum of $14 on any grade. No interest is noted in basic, quoted nominally at $14.50 to $15, delivered in this territory. A small lot of copper-bearing, low phosphorus iron has been sold. The market for this grade continues $21.50 to $23, eastern Pennsylvania furnace, depending on destination. An Ohio consumer has closed for 250 tons of copper-free, low phosphorus iron, with a Tennessee furnace. A cargo of Dutch foundry iron was unloaded here last week.

Cleveland—Lack of pig iron stocks at melters' yards is emphasized by the numerous calls for small shipments. Furnaces in this district have not reached the point where iron is trucked to destination, but castings made here are being shipped by truck to the Detroit district. An Indiana melter who inquired several weeks ago for 1000 tons, first placed 50 tons, then another 50 tons, and is likely to buy the remainder as required. No inquiry in the week was for more than 200 tons; no sale for more than 300. Furnace interests here, and with lake stacks, booked approximately 2500 tons in the week. Prices are nominal at $15.50, base, furnace, for local delivery, and $14.50, furnace, for outside shipment, though less than $14.50 is being done in competitive territory. Interlake Iron Corp. has lighted one of its two stacks at Toledo, O., and the Jackson Iron & Steel Co., Jackson, O., recently relighted its stack, making silveries and bessemer ferrosilicon.

Youngstown, O.—Continuance of the small sales of malleable and No. 2 foundry pig iron, to fill urgent needs of consumers in this district is noted. Shipments are on the same level as in preceding weeks. Quotations have not changed.

Cincinnati—Demand for pig iron shows little change from May. Individual orders remain light, with virtually no interest in forward covering. Prices are unchanged.

Chicago—Pig iron shipments have declined moderately and the June movement was slightly smaller than that of May, for some interests being the poorest month of the first half. New business also continues light. Consumption lacks improvement in practically all directions. Prices remain untested, and the $16 furnace quotation is subject to concessions.

St. Louis—Shipping specifications on contracts have improved slightly, this being attributed to melters' low stocks rather than to an increase in the melt. Foundry operations at the close of June were near the low point of the year. Preliminary reports indicate shipments to consumers in the month were below those of May. Sales in the past several days totaled less than 350 tons. Contracting for third quarter has not developed.

Birmingham, Ala.—Local pig iron consumers have been making efforts to get concessions below $11, base, furnace, but unsuccessfully. Production and consumption are at the lowest point of the year.

Toronto, Ont.—Sales continue restricted to single carloads, with no buying being done for the future. The melt averages about 30 per cent. Prices are unchanged.

Coke

Foundry Fuel Shipments Lower—Southern Price Down 50 Cents—Water Gas Orders Increasing

COKE PRICES, PAGE 48

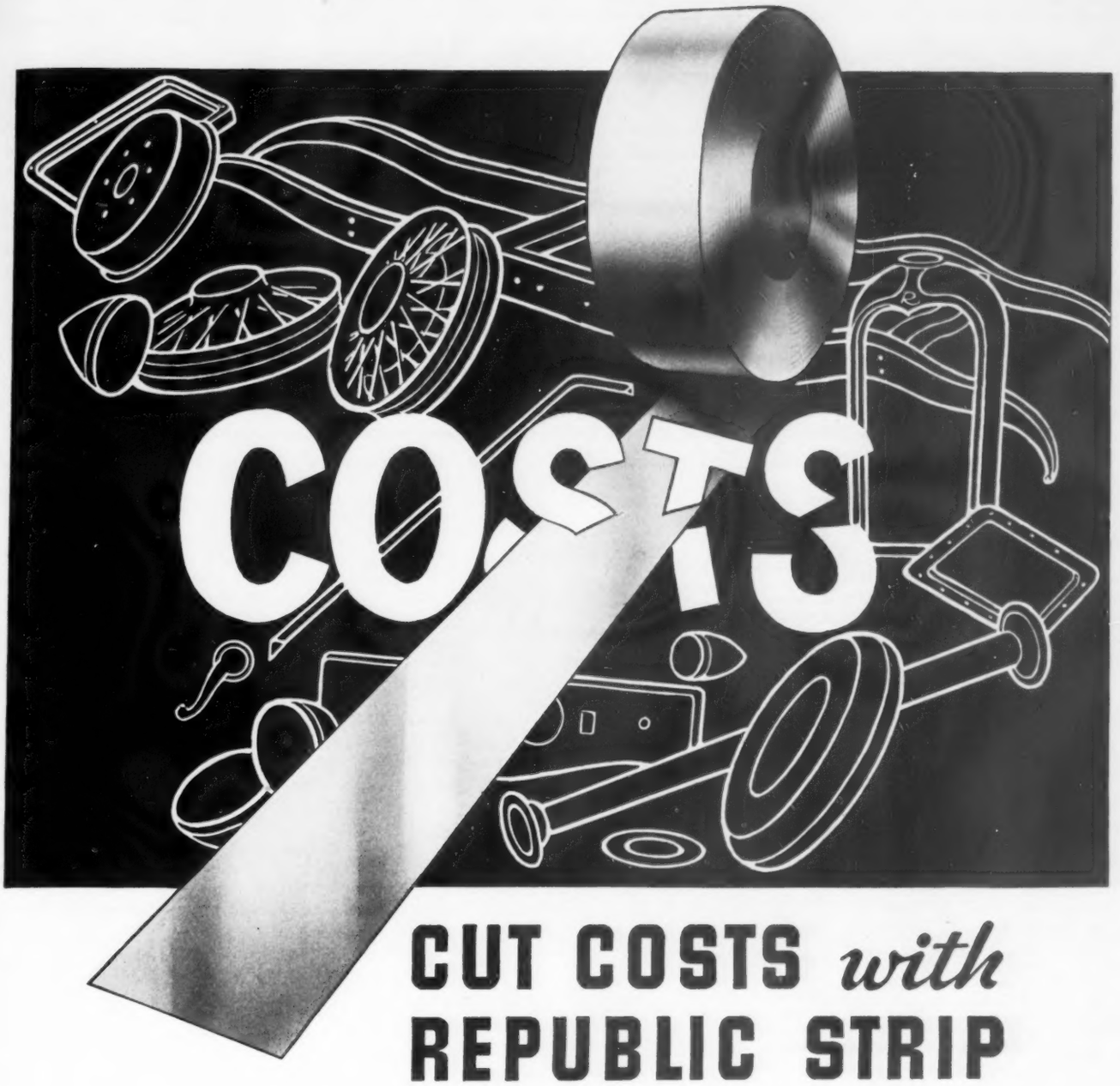
Pittsburgh—The market for water gas coke is continuing to improve. June shipments were fairly high. However, producers would willingly move a medium-size quantity of furnace coke at $2. Even spot sales of foundry coke, which have been representing immediate needs for some time, fell off last week due to the general suspension in foundry operations. The price of $3 to $4.25, depending upon the grade, continues for foundry coke.

Birmingham, Ala.—Low levels still are reported in new orders and in shipments of metallurgical coke, even with reduction of 50 cents on foundry base. Production is being materially reduced.

New York — Metallurgical coke specifications appear lighter. The foundry melt is estimated at little more than 10 per cent. Beehive furnace coke is $1.50 to $2, Connellsville, for heating grades and $2 to $2.15 for smelting grades. Beehive foundry coke is easy at $3 to $3.25, Connellsville, on standard grades and $4.25, Latrobe, Pa., on premium brands. By-product foundry coke is $8.21 to $8.81, delivered Newark, N. J.; $10, New England; and $8.50, Philadelphia.

Cincinnati—Shipments of by-product coke for June were slightly lower than in the preceding month.

St. Louis—Shipments of metallurgical coke in June were the lowest of any month so far this year. Recently specifications have increased moderately. Demand for domestic and furnace grades from watergas interests is relatively heavier than that from blast furnaces. Prices are unchanged.



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REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

Scrap

Buying at Lowest Level, Prices Largely Nominal — Bethlehem Buys Tonnage for Lackawanna

Chicago—Activity in iron and steel scrap is practically at the vanishing point, with new buying light and shipments against contracts at a restricted rate. Dealers look for little change in mill purchases during July in view of the present rate of open-hearth operations and the fact that considerable scrap is on hand. Railroads still defer selling of accumulated material and prices are receiving no test. Quotations are nominal with a few grades quoted slightly lower. Prices generally are weak.

Boston—Scrap is dull, movement of No. 1 steel and other grades being practically absent. Prices are nominal on most grades and inclined to weakness in others. Some offers are made for chemical borings at $4.75 to $5.50, shipping point. Cast

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.50 to	7.00
Boston, dealers	3.35 to	3.75
Buffalo, No. 1	6.50 to	7.00
Buffalo, No. 2	5.00 to	5.50
Chicago	5.25 to	5.75
Cleve., No. 1	6.50 to	7.00
Cleve., No. 2	6.25 to	6.75
Det., No. 1 deal.	4.50 to	5.00
Det., No. 2 deal.	2.50 to	3.00
E. Pa. del. mill		6.00
E. Pa., No. 2 del.		4.00
N. Y. deal, R. R.	3.00 to	3.50
N. Y. deal, No. 2	1.00 to	2.00
N. Y. deal. yd.	2.50 to	3.00
Pitts. No. 1	8.25 to	9.25
St. L. No. 1 sel.	5.50 to	6.00
Federal, Ill.	5.25 to	5.75
Granite City, Ill.	4.50 to	5.00
Valleys, No. 1	8.50 to	9.00

COMPRESSED SHEETS

Buffalo, dealers	5.00 to	5.50
Chi. (Factory)	4.00 to	4.50
Cleveland	6.50 to	7.00
Detroit, dealers	4.00 to	4.50
E. Pa. new mat.	5.00 to	5.50
Pittsburgh	8.00 to	8.50
Valleys	8.00 to	8.50

BUNDLED SHEETS

Buffalo	4.00 to	4.25
Cinci., del.	4.00 to	4.50
Cleveland	6.00 to	6.50
Eastern, Pa.		5.00
Pittsburgh	7.00 to	7.50
St. Louis	1.50 to	2.00

SHEET CLIPPINGS LOOSE

Chicago	2.50 to	3.00
Cincinnati	2.50 to	3.00
Detroit, dealers	1.75 to	2.25
St. Louis	1.50 to	2.00

STEEL RAILS SHORT

Birmingham	10.00 to	10.25
Boston, dealers	4.00 to	4.50
Buffalo	9.00 to	9.50
Chicago (3 ft.)	7.00 to	7.50
Chicago (2 ft.)	7.50 to	8.00
Cinci., deal.	8.50 to	9.50
Detroit, deal	7.00 to	8.00
Pitts. (open-hearth, 3 ft. and less)	10.50 to	11.00
St. Louis	7.50 to	8.00

STOVE PLATE

Birmingham	5.50 to	6.00
Boston, dealers	2.00 to	2.50
Buffalo	6.75 to	7.00
Chicago, net	4.50 to	5.00
Cinci., deal. net	3.25 to	3.75
Det., net deal.	2.50 to	3.00
Eastern Pa.		6.00
N. Y., deal. mill	2.50 to	3.00
St. Louis	5.50 to	6.00

COUPLERS, SPRINGS

Buffalo	9.00 to	9.50
Chicago	6.50 to	7.00
Eastern Pa.	7.50 to	8.00
Pittsburgh	9.00 to	9.50
St. Louis	6.00 to	6.50

ANGLE BARS—STEEL

Chicago	6.50 to	7.00
St. Louis	6.50 to	7.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00 to	9.50
Cleveland bil. and bloom crops	9.00 to	10.00
Eastern Pa.	9.00 to	10.00
Pittsburgh billet bloom crops	11.00 to	11.50
Pitts., sheet bar crops	10.75 to	11.25

FROGS, SWITCHES

Chicago	5.50 to	5.75
St. Louis	6.00 to	6.50

SHOVELING STEEL

Chicago	5.50 to	5.75
Cleveland	6.25 to	6.50
St. Louis	5.25 to	5.75

RAILROAD WROUGHT

Birmingham	6.00 to	6.50
Boston, dealers	1.00 to	1.50
Buffalo, No. 1	4.25 to	4.75
Buffalo, No. 2	6.50 to	7.00
Cinci., No. 2	4.50 to	5.00
Chicago, No. 1	4.50 to	5.00
Chicago, No. 2	5.25 to	5.75
Eastern, Pa.	6.00 to	6.50
N. Y., No. 1, deal.	2.50 to	3.00
Pitts., No. 2	8.25 to	9.25
St. Louis, No. 1	4.00 to	4.50
St. Louis, No. 2	4.50 to	5.00

SPECIFICATION PIPE

Boston	4.00 to	4.25
Eastern Pa.	7.00 to	8.00
N. Y., deal	2.00 to	2.25

BUSHELING

Buffalo, No. 1	5.00 to	5.50
Chicago, No. 1	4.00 to	4.50
Cinn., No. 1 dl.	3.75 to	4.25
Cinn., No. 2	2.25 to	2.75
Cleve., No. 2	4.00 to	4.25
Det., No. 1 new deal.	3.25 to	3.75
St. L., No. 1	3.00 to	3.50
Val. new No. 1	8.00 to	8.50

MACHINE TURNINGS

Birmingham	3.00 to	3.50
Boston, dealers	0.50 to	1.00
Buffalo	3.50 to	4.00
Chicago	2.00 to	2.50
Cin., deal.	2.75 to	3.25
Cleveland	3.00 to	3.50
Detroit	1.75 to	2.25
Eastern Pa.	3.00 to	3.50
N. Y., deal	1.35 to	1.50
Pittsburgh	5.00 to	5.50
St. Louis	1.50 to	2.00
Valleys	5.75 to	6.25

BORINGS AND TURNINGS For Blast Furnace Use

Boston, dealers	.60 to	.75
Buffalo	4.00 to	4.50
Cinn., deal.	2.75 to	3.25
Cleveland	3.50 to	4.00
Detroit, deal	2.25 to	2.75
Eastern Pa.	3.00 to	3.50
N. Y., deal	1.35 to	1.50
Pittsburgh		5.00

CAST IRON BORINGS

Birming., chem.	12.50 to	13.00
Birming., plain	3.00 to	3.50
Boston, chem.	5.00 to	5.50
Boston, dealers	1.00 to	1.25
Buffalo	4.00 to	4.50
Chicago	2.00 to	2.50
Cinn., deal.	2.75 to	3.25
Cleveland	3.50 to	4.00
Detroit, deal.	2.25 to	2.75
Eastern Pa.	3.00 to	3.50
E. Pa., chem.	8.00 to	10.50
N. Y., deal.	1.00 to	1.50
Pittsburgh		5.00
St. Louis	2.75 to	3.25

PIPE AND FLUES

Cinn., deal.	3.00 to	3.50

RAILROAD GRATE BARS

Buffalo	4.00 to	4.50
Chicago, net	4.50 to	5.00
Cincinnati	4.25 to	4.75
Eastern Pa.		6.00
N. Y., deal.	3.50 to	4.00
St. Louis	4.50 to	5.00

FORGE FLASHINGS

Boston, dealers	2.00 to	2.50
Buffalo	4.00 to	4.50
Cleve. ov. 10 in.	6.50 to	7.00
Detroit	3.00 to	3.50

FORGE SCRAP

Boston, dealers	1.75 to	2.00
Chicago	7.00 to	7.50
Eastern Pa., del.	5.00 to	5.50

ARCH BARS, TRANSOMS

Chicago, net	4.50 to	5.00
St. Louis	5.00 to	5.50

AXLE TURNINGS

Boston, deal.	6.00 to	6.50
Buffalo	6.50 to	7.00
Chi., elec. fce.	4.50 to	5.00
Cleveland	6.50 to	6.75
Eastern Pa., del.		6.00
Pittsburgh, O. H.	7.50 to	8.00
St. Louis	3.50 to	4.00

STEEL CAR AXLES

Birmingham	10.00 to	10.50
Boston, ship. pt.	6.50 to	7.00
Buffalo	10.00 to	10.50
Chicago	9.00 to	9.50
Eastern Pa.		14.50
St. Louis	9.00 to	9.50

SHAFTING

Boston, ship, pt.	8.50 to	9.00
N. Y., deal.	6.50 to	7.00
St. Louis	7.50 to	8.00
E. Penna.		12.50

CAR WHEELS

Birming., iron	7.00 to	7.25
Boston, iron deal.	4.00 to	4.50
Buffalo, iron	7.00 to	8.00
Buffalo, steel	8.00 to	8.50
Chicago, iron	5.50 to	6.00
Chi., rolled steel	6.25 to	6.75
Cincinnati iron	6.25 to	6.75
E. Pa. steel	7.50 to	8.00
E. Pa. iron	9.00 to	9.50
Pitts. iron	9.50 to	10.00
Pitts., steel	9.25 to	9.75
St. Louis, iron	5.00 to	5.50
St. Louis, steel	5.00 to	5.50

NO. 1 CAST SCRAP

Birmingham	6.50 to	7.00
Buffalo (Mach.)	9.00 to	9.50
Buffalo, cupola	8.00 to	8.50
Boston, textile	7.00 to	7.50
Chicago, mach.	6.15 to	6.70
Chi., railroad	5.60 to	6.15
Chicago, agri.	5.30 to	5.90
Cinn., mach. cup.	7.50 to	8.00
Cleve. cupola	6.50 to	7.00
Det., net deal.	6.75 to	7.25
E. Pa. cupola		9.00
N. Y., cup. deal.	5.00 to	6.00
N. Y., del. local foundries	7.50 to	8.00
Pitts., cupola	9.00 to	9.50
San Fran., del.	13.50 to	14.00
Seattle	5.00 to	7.50
St. L. No. 1 ma.	6.50 to	7.00
St. L., No. 1	6.00 to	6.50

HEAVY CAST

Boston, del.	3.00 to	3.50
Bost., mach. cast	7.00 to	7.50
Buffalo, break	5.50 to	6.00
Cleve., break	3.50 to	4.00
Detroit, auto, net deal.	8.00 to	8.50
Det., break., dl.	4.00 to	4.50
Eastern Pa.	7.50 to	8.00
N. Y. No. 1, dl.	4.00 to	4.25
N. Y. break, dl.	3.50 to	4.00
Pittsburgh	7.75 to	8.25

MALLEABLE

Boston Consum.	6.00 to	6.25
Buffalo	8.00 to	8.50
Chicago, agri.	5.25 to	5.75
Chicago, R. R.	6.00 to	6.50
Cinci., R. R., del.	7.50 to	8.00
Cinci., agri. del.	7.00 to	7.50
Cleveland, rail	7.50 to	8.00
Det. auto deal.	5.00 to	6.00
St. Louis, rail	5.00 to	5.50

RAILS FOR ROLLING 5 feet and over

Birmingham	8.00 to	9.00
Boston, deal.	5.00 to	5.50
Buffalo	7.00 to	7.50
Chicago	7.50 to	7.75
Eastern Pa.		9.50
New York dealer	4.25 to	4.75
St. Louis	8.00 to	8.50

LOCOMOTIVE TIRES

Chicago, cut	7.00 to	7.50
St. L., No. 1	4.50 to	5.00

LOW PHOS. PUNCHINGS

Chicago	7.00 to	7.50
Buffalo	9.00 to	9.50
Eastern Pa.	9.50 to	10.00
Pittsburgh	9.50 to	10.00

and wrought grades are dull and weak. Some No. 1 steel is being bought at $4.50 against an export order. The broker is reported to have obtained $5.25 for this cargo. Steel car axles bring offers of $6.50.

New York—Following halt in buying of No. 1 steel for boat loading, dealers' buyers prices for that grade have dropped sharply to $3 and $3.50, a decline of $1 considering the inside figure. Last paid for delivery for ship loading was $4, but buying is finished against this export order. For eastern Pennsylvania, dealers are unwilling to go much above $3 at present delivered prices. Other grades are dull and easy.

Philadelphia—Bethlehem Steel Co. has bought a tonnage of No. 1 heavy melting steel from the New York Central railroad for shipment to its Lackawanna plant at $7 delivered. In Eastern Pennsylvania No. 1 heavy melting steel is not above $6, delivered; one lot of 200 tons has been bought at this figure. Steel axles have been bought at $14.50, delivered eastern Pennsylvania.

Buffalo—Confirmation of Bethlehem's reported purchase of a railroad list is not obtainable but the trade believes the rumor well founded that $6.25 a net ton was paid for melting steel at this railroad's line. This would bring the gross ton price, with switching charge, to slightly more than $7, delivered at Lackawanna.

Pittsburgh—Steel ingot production here being almost at a standstill last week-end and early this week, has been the cause for a decidedly more bearish sentiment in the local scrap market. Present prices mean little in the absence of mill sales. The Pennsylvania railroad will close July 6 on its June scrap offering which involves 11,165 tons of various items, including 1500 tons of No. 1 heavy melting steel, 2500 tons of scrap rails and 2200 tons of iron car wheels. The Baltimore & Ohio railroad's list will be closed on July 11.

Detroit—Hydraulically compressed sheet scrap has declined 50 cents, being held that amount below heavy melting steel. The situation shows no change, with demand at a minimum.

Cleveland—Shipment of scrap is at a standstill here and in the Valley. Prices at Youngstown, O., have been marked down but Cleveland quotations remain steady, price being no factor in the market.

Cincinnati — Activity in iron and steel scrap has reverted to carloads, with concessions making present quotations nominal. Iron carwheels are down 50 cents, to $6.25 to $6.75, on reports of recent transactions.

St. Louis—Activities in iron and steel scrap are confined almost exclusively to small shipments on contracts, new purchasing having virtually dried up. During the immediate past, specifications have improved slightly, but many melters are taking in no material whatever. Prices are nominal.

Birmingham, Ala.—Low prices on scrap are considered nominal, with sales at prices set by consumer. Trading is near a standstill.

Toronto, Ont. — Trading in iron and steel scrap is dull, with steel grades at a standstill. Consumers are buying as demands dictate, but the market is specialized and spotty. No. 1 machinery cast is moving steadily, stove plate is spotty and other grades practically inactive. Prices are unchanged.

Wire Consumers Taking Smaller Lots; Prices Firm

Wire Prices, Page 41

Chicago—Specifications for wire products tend downward slightly. Shipments to most consumers of manufacturers' wire are lighter than a month ago and jobbing products also have experienced some recession. Contracting has been slow, although prices are fairly steady at $2 in carloads for wire nails, 2.25c for plain wire, and $38 for wire rods.

Worcester, Mass.—Wire demand is light with prices steady. While some orders are coming through for specialties, buying generally drags and is reflected in curtailed mill operations. Federal government is refusing to buy foreign material, despite some low bids on German wire rope, and a New Haven mill has taken considerable such business.

Philadelphia—Demand for steel wire and nails is small but prices are firm. Plain wire is 2.20c, base, Pittsburgh. Nails are $1.95 per 100-pound keg, base Pittsburgh.

Buffalo—One open-hearth furnace has been placed in operation at the Wickwire plant here, no ingots having been produced there in several months previously. Demand shows no change from its recent low point.

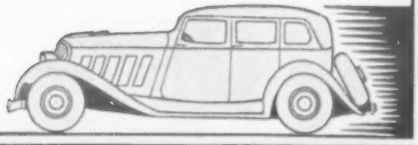
Pittsburgh—June shipments of all wire products fell considerably beneath the May figures. Stocks in the hands of jobbers and the manufacturing trade are low and nail specifications run to many sizes in small quantities. Prices are in line at 2.20c for plain wire and $1.95 a keg for nails in carload lots.

STAMPINGS

These wheels are made from two formed cups electric welded together for use in connection with the new type low pressure tires.

Our plant is equipped to produce stampings of all descriptions. Consult us on your stamping problems.

FALLS STAMPING CO.
Cuyahoga Falls, Ohio



Accuracy-Economy

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.75c, Conn., for copper

Sheets	
Yellow brass (high)	12.00
Copper, hot rolled	14.87½
Lead sheets, cut, to jobbers	6.50
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	15.25
Seamless copper	14.37½
Rods	
Yellow brass (high, full turnings)	9.75
Naval brass	10.87½
Anodes	
Copper untrimmed	11.75
Wire	
Yellow brass (high)	12.00

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	2.50 to 2.75
Chicago	1.87½ to 2.00
Cleveland	2.50 to 3.00
St. Louis	2.25
Heavy Yellow Brass	
New York	1.75 to 1.87½
Heavy Copper and Wire	
New York	3.37½ to 3.62½
Chicago, No. 1	3.00 to 3.25
Cleveland	2.75 to 3.00
St. Louis	2.75
Composition Brass Borings	
New York	2.25 to 2.50
Yellow Brass Tubing	
Cleveland	1.25 to 1.75
Light Copper	
New York	2.75 to 2.87½
Chicago	2.00 to 2.25
Cleveland	2.25 to 2.50
St. Louis	2.25
Light Brass	
Chicago	1.12½ to 1.25
Cleveland	1.00 to 1.25
St. Louis	1.00
Lead	
St. Louis	2.00
Zinc	
New York	0.75 to 1.00
Cleveland	0.87½ to 1.00
St. Louis	1.00
Aluminum	
Clippings, new, soft, Cleve.	9.00 to 9.50
Clippings, hard, Cleveland	6.50 to 7.00
Borings, Cleveland	2.50 to 3.00
Mixed cast, Cleveland	3.25 to 3.75
Mixed cast, St. Louis	2.50 to 3.00

Secondary Metals

Remelt. aluminum No. 12	7.00 to 8.00
Brass ingots, 85-5-5-5	6.00

Metals

Lead Prices Break and Zinc Moves Lower—Realignments in Copper Market Develop

New York—New alignments in the world copper market, a break in the lead market, easiness in zinc and a further decline in silver featured the metals last week. Tin advanced sharply. Aluminum, nickel and antimony held steady. Demand in general was dull.

Copper—A number of large foreign copper producers withdrew from Copper Exporters Inc. last week as the result of the imposition of the American tariff of 4 cents a pound. Great Britain also is expected to impose retaliatory tariffs. This would result in three marketing divisions, the United States, British Empire and the remainder of the world. In the domestic market, electrolytic copper continued available from custom smelters at 5.37½c, Connecticut, for delivery through the end of the year. Mine producers remained out of the market. Domestic consumers have shown little disposition to increase their takings.

Lead—Quotations broke to new low ground for recent years when metal was offered at 2.60c, East St. Louis, and 2.75c, New York. The break was somewhat of a surprise to the trade but was believed due to the recently more unsatisfactory statistical position of the market and failure of demand to improve in June. Further curtailment of production is expected to result.

Zinc—The market was weak with metal available at the close of the period at 2.67½c, East St. Louis. Further curtailment of production is anticipated due to the relatively higher price now existing for ore. Demand recently has been of small proportions.

Tin—Tin eased off early in the week despite the effecting of the Byrne plan for curtailment of production and suspension of exports. Later in the week, however, prices shot upward rapidly on reports that professional operators were active abroad.

Antimony—Demand continued dull with price nominally unchanged.

Aluminum—Quietness continued in demand but prices held. Some shading was evident in remelt ingot.

Silver—Commercial bars reached a new 1932 low of 26.37½c an ounce Friday. Trading was slow.

Coke By-Products Slower; Naphthalene Prices Easier

New York — Naphthalene prices have weakened, the result of forced sales of considerable distress material, although official quotations are unchanged. Demand has slowed up since June 15. The distillates group is firm, but buying is lighter. Phenol buying is routine and generally in small lots at unchanged prices. Sulphate of ammonia is unchanged and slow.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots	**Spot**
Pure benzol	$0.20
90 per cent benzol	0.26
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants	
Phenol	0.153 to 0.173
Per Pound at Producers' Plants in	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.00

Colorado Fuel & Iron Co., Denver and Pueblo, Colo., is sponsoring rug weaving and gardening among its miners in Las Animas county to minimize dependence upon coal mining.

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper: Electro delivered	Copper: Lake delivered	Copper: Casting refinery	Straits Tin: New York Spot	Straits Tin: New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
June 25	5.37½	5.87½	5.12½	19.35	19.80	3.00	2.90	2.75	22.90	5.00	35.00
June 27	5.37½	5.87½	5.12½	19.20	19.65	3.00	2.90	2.75	22.90	5.00	35.00
June 28	5.37½	5.87½	5.12½	19.00	19.35	3.00	2.90	2.75	22.90	5.00	35.00
June 29	5.37½	5.87½	5.12½	19.60	19.90	2.95	2.85	2.75	22.90	5.00	35.00
June 30	5.37½	5.87½	5.12½	20.25	20.55	2.75	2.60	2.70	22.90	5.00	35.00
July 1	5.37½	5.87½	5.12½	20.37½	20.92½	2.75	2.60	2.67½	22.90	5.00	35.00

Pacific Coast

First Half Tonnages Well Below Last Year's—Buying Holds to Small Lots but Prices Are Not Weakened—Industrial Activity Fails to Increase—Public Work Brings Most Buying

San Francisco—(*By Air Mail*)—Demand for steel products on the Pacific Coast during first half fell considerably below that of the corresponding period in 1931. Figures for the four principal items follow:

	Tons 1932	Tons 1931
Reinforcing steel bars	30,047	34,876
Cast iron pipe	23,867	36,817
Plates	8,272	105,887
Shapes	50,871	57,945

Mild steel bars continue to move in small lots only, but prices are firm at 2.10c, c.i.f. Unnamed interests secured 225 tons of reinforcing bars for highway work in Los Angeles county, Calif., and 190 tons for building at the Hoover Dam site, Boulder City, Nov. Bids will be opened July 13 for 330 tons for a crossing at Del Mar, Calif.

Although over 37,000 tons of structural shapes are up for figures or about to be released, awards were confined to two projects involving 100 tons or more. The Virginia Bridge & Iron Co. took 115 tons for a shelter building at Coolidge, Ariz., for the government, and an unnamed interest took 115 tons for a bridge over Clear creek in Yavapai county, Ariz. New inquiries include 1200 tons for a medical school in San Francisco for the University of California and 750 tons for gates and valves for the Pine Canyon dam, Pasadena, Calif. Plain standard shapes are quoted at 2.10c, c.i.f. with wide flange material at 2.20c.

The United States Pipe & Foundry Co. booked 400 tons of cast iron pipe for Hamilton Field, Calif., and 200 tons additional will be placed shortly. American Cast Iron Pipe Co. is low bidder on 115 tons of 6-inch pipe for Upland, Calif. No pipe line inquiries of importance are in the market.

Some Small Lots Let

Seattle—Conditions are unchanged in the iron and steel markets of the Pacific Northwest. Industrial activity has not revived and practically all construction is federal or state. The wholesale jobbing trade is in small tonnages out of stock. While Seattle and Portland, Oreg., are working on the same base price schedule, there is still some variation in conditions. Portland allows 2 per cent on all items while the Seattle trade is working on net cash on all steel products and 2 per cent on hardware. On sheets 1000 pounds is the minimum for the lower prices, while at Portland the minimum is 25 bundles.

Awards this week included 315 tons of reinforcing for the Santiam river bridge, Oregon, to Soule Steel Co., Portland. Structural steel for two state bridges in Fallon and Custer counties, Montana, 210 tons, will be furnished by the Minneapolis-Moline Implement Co., Minneapolis. French interests have booked 325 tons of cast iron pipe for two Seattle improvements—150 tons of 6 and 8-inch for Aurora avenue and 175 tons of 10 to 24-inch for the Forty-third avenue North sewer project. American Locomotive Co., Schenectady, N. Y., was low at $14,714 for the cylinder hoist and gates for the Cle Elum, Wash., dam. Beall Pipe & Tank Co., Portland, will erect a 75-foot smokestack for the Portland public docks.

Steel in Europe

British and Continental Mills Book Export Tonnages

London—(*By Radio*)—The market continues dull but some bright spots have appeared. Dorman, Long & Co. have booked a contract from Denmark for a bridge, said to be the longest in Europe, requiring 26,000 tons of steel valued at £2,000,000, and a contract for a bridge in China.

Continental markets are quiet. Belgium has booked an order from India for 2000 tons of beams on special terms. Germany is negotiating an addition of 25,000 tons on its Russion steel contract. Russian contracts with Polish steel mills now total 80,000 tons. The German state is reported to have acquired 51 per cent of the shares of the Ruhr steel trust.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, June 23

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON		£ s d		£ s d £ s d
Foundry, 2.50-3.00 Silicon	$10.50	2 18 6	$ 8.75 to $ 9.23	1 16 0 to 1 18 0
Basic bessemer	10.05	2 16 0*	7.41 to 7.90	1 10 6 to 1 12 6
Hematite, Phos. .03-.05	11.22	3 2 6	6.80 to 7.29	1 8 0 to 1 10 0
SEMIFINISHED STEEL				
Billets	$17.50	4 17 6	$9.48	1 19 0
Wire rods, No. 5 gage	26.93	7 10 0	21.87	4 10 0
FINISHED STEEL				
Standard rails	$29.62	8 5 0	$26.73	5 10 0
Merchant bars	.98c	6 2 6	.46c to .48c	2 2 0 to 2 4 0
Structural shapes	1.18c	7 7 6	.44c to .45c	2 0 0 to 2 1 0
Plates, †¼ in. or 5 mm	1.40c	8 15 0	.58c to .59c	2 13 0 to 2 14 0
Sheets, black, 24 gage or 0.5 mm.	1.28c	8 0 0	1.17c to 1.20c	5 6 0 to 5 9 0
Sheets, gal., 24 gage, corr.	1.54c	9 12 6	1.49c	6 15 0
Bands and strips	1.28c	8 0 0	.72c to .74c	3 5 0 to 3 7 6
Plain wire, base	1.52c	9 10 0	1.18c	5 7 6
Galvanized wire, base	1.84c	11 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.76c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.69	0 15 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty paid. German ferromanganese £9 0 10d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

		£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$10.50	2 18 6	$ 8.65	220(2)	$ 8.76	315	$16.42	69
Basic bessemer pig iron	10.05	2 16 0*	7.27	185(1)	7.23	260	17.97	75.50
Furnace coke	2.38	0 13 3	4.87	124	4.03	145	4.57	19.20
Billets	17.95	5 0 0	14.54	370	10.15	365	22.97	96.50
Standard rails	1.34c	8 7 6	1.41c	785	1.57c	1,210	1.37c	127
Merchant bars	1.06c	6 12 6	.95c	530	.53c	410	1.19c	110
Structural shapes	1.40c	8 15 0	.99c	550	.53c	410	1.16c	107.50
Plates, †¼-in. or 5 mm.	1.44c	9 0 0	1.17c	650	.69c	530	1.37c	127
Sheets, black	1.32c	8 5 0§	1.44c	800‡	.88c	675‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.48c	9 5 0	2.83c	1,570	1.78c	1,370	4.00c	370
Plain wire	1.52c	9 10 0	2.03c	1,130	1.95c	1,500	1.92c	178
Bands and strips	1.52c	9 10 0	1.04c	580	.88c	675	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel Continental usually for basic-bessemer steel

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	25	7
¾	62	50½	¾	30	13
1—3	64	52½	1—1¼	33	17
			1½—2	37	20

LAP WELD

2	57	45½	2	25	11
2½—6	61	49½	2½—3½	30	15
7—8	58	45½	4—6	32	19
9—10	56	43½	7—8	31	18
11—12	55	42½	9—12	28	13

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+11	+46
¾	60	49½	½	25	9
1—1½	62	51½	¾	30	14
2—3	63	52½	1—2	36	20

LAP WELD

Extra strong, plain ends

2	55	44½	2	31	15
2½—4	59	48½	2½—4	36	22
4½—6	58	47½	4½—6	35	21
7—8	54	41½	7—8	33	19
9—10	47	34½	9—12	23	10
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir.	$32.00 to 33.00
Four-inch, Birmingham	36.00 to 37.00
Four-inch, Chicago	38.40 to 42.40
Six to 24-inch, Chicago	34.40 to 38.40
Six-inch and over, N. Y.	26.00 to 28.00
Four-inch, New York	32.50 to 34.50
Stand. fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los. Ang.	3.30c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	3.00c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.00c
St. Paul	2.85c
Tulsa	3.25c

IRON BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los. Ang. cl.	2.10c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.50c
San Fran. lcl	2.80c
Seattle	3.00c
St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.30c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	3.00c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York(d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.00c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.45c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.60c
N. Y.	3.00c
Portland	4.00c
Phila.*† (e)	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York	3.75c-4.00c
Phila.*†(e)	3.40c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.05c
Seattle	4.50c
St. Louis	3.80c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.05c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	4.00c
Houston	4.25c
Los. Ang.	4.50c
New York	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	5.00c
San. Fran.	4.55c
Seattle	5.00c
St. Louis	4.35c
St. Paul	4.19c
Tulsa	5.10c

BANDS

Baltimore	3.25c
Boston	3.75c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	3.80c
New York(d)	3.40c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.65c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

HOOPS

Baltimore	3.25c
Boston	4.90c-5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.55c
Buffalo	2.95c
Chattanooga*	3.65c
Chicago	2.95c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York	3.39c
Philadelphia*	3.35c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.20c
St. Louis	3.54c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex, only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	3.95c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

(d) Minus quant. diff.

(e) New mill classif.

‡Domestic bars.

*Plus quan. extras.

**Less than 25 sheets.

*†50 or more bundles.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New York

BROOKLYN—Bach Decorative Metal Corp. has been incorporated with $20,000 capital, by Ornstein & Silverman, 405 Lexington avenue, New York.

NEW YORK—Majestic Iron Works has been incorporaed with 100 shares common stock, by Stein & Stein, 305 Broadway.

Pennsylvania

PHILADELPHIA—J. G. Brill Co., Sixty-second street and Wodland avenue, is planning alterations to its automotive plant and installation of additional equipment to complete combining of motors divisions of the American Car & Foundry Co. here. Estimated cost $40,000.

SCRANTON — Eastern Specialties Corp. has been incorporated with $25,250 capital to manufacture machinery and tools, by William E. Bright.

Ohio

CINCINNATI — American Airways Co., Gen. John J. Ryan vice president, Lunken airport, plans erection of a hangar at the airport.

CINCINNATI—Cincinnati Union Terminal Co., 1020 Temple Bar building, has bids under consideration for a power house, $120,000, with four 1000-horsepower boilers and accessories.

CINCINNATI—Metal Specialty Co., 1533 Riverside drive, will let a contract soon for construction of a plant at Lagdon farm. Tieg & Tee, 34 West Sixth street, are architects.

LONDON—Department public welfare, state of Ohio, John McSweeney, director, Third and Oak streets, Columbus, will take bids soon for new boilers at London prison farm.

YOUNGSTOWN—City, Grant M. Cook city engineer, plans erection of steel standpipes as part of $400,000 waterworks extensions.

Michigan

DETROIT—General Fire Equipment Corp. has been incorporated with 1000 no par shares to manufacture fire protection equipment, by Arthur A. Morris, 3501 Barlum tower.

DETROIT — Michigan Collapsible Tube Co., 11237 Mack avenue, has been incorporated with 5000 no par shares to manufacture collapsible tubes, by Godfried Heizman, 4613 Beniteau street.

LUDINGTON—Consoor, Older & Quinlan, Chicago, are preparing plans for a sewage disposal plant here, to cost $110,000.

Illinois

CHICAGO—Scientific Model Corp., 115 South Clinton street, has been incorporated with $15,000 capital to manufacture models, dies, tools, by Fred A. Clarke, 69 West Washington street.

ROCK ISLAND—Mississippi Foundry Corp. has been organized with capital of $40,000 by officials of the Gellman Mfg. Co., manufacturer of tools and wrenches, to produce metal castings.

SANDWICH — Wallenbeck Holland Mfg. Co., Fourth and Elm streets, has been incorporated with 2000 shares no par value to manufacture razors and razor stropping devices, by Albert C. Bell, 1712 Roanoke building, 11 South LaSalle street, Chicago.

Wisconsin

JEFFERSON — A general sheet metalworking shop is being established by J. C. Jackson and R. H. Eiden.

MILWAUKEE—Milwaukee board of harbor commissioners has tentatively approved construction of a waterpipe system on Jones island at estimated cost of $40,000. C. U. Smith is chief engineer.

KOHLER—Jerry Donohue Engineering Co., Sheboygan, Wis., is making plans for a municipal sewage disposal plant and garbage incinerating plant to be undertaken this year. Will Neseman is village clerk.

Pacific Coast

ROSEBURG, OREG.—Bids will be received July 18 for a steel bridge at the soldiers' home site here, 200-foot central span and two 40-foot approaches.

SALEM, OREG.—State board of control is asking bids on a 250-horsepower boiler for the state prison, cost not more than $20,000.

STAYTON, OREG.—Mountain States Power Co. has bought the necessary water supply and plans construction of a hydroelectric plant here, to cost $45,000, replacing the plant destroyed by fire.

SEATTLE—Warehouse and plant of M. Goodlick & Co., First avenue south and Connecticut street, dealers in machinery and equipment, was severely damaged by fire June 14.

SEATTLE—Reliance Iron & Wire Works, 1327 Weller street, recently damaged by fire a second time, is under reconstruction.

Dominion of Canada

PETERBORO, ONT. — Canadian Raybestos Co. Ltd., Perry street, is having plans drawn by John Hornsby architect, 332½ George street, for two additional buildings.

TORONTO, ONT.—Steelcote Mfg. Co. of Canada Ltd. has been incorporated with $50,000 capital, by Maurice Crabtree, Toronto.

EAST MONTREAL, QUE.—Shell Oil Co. of Canada Ltd., 21 Dundas square, Toronto, plans to build a $2,000,000 oil refinery here. P. Reynolds is engineer.

MONTREAL, QUE.—Holzer-Cabot Electric Co. Ltd. has been incorporated with $50,000 capital to manufacture electric machinery and appliances, by Wendall H. Laidley, Montreal.

VILLE LASALLE, QUE.—Label, Nickel & Garnet Co. Ltd., 354 St. Catherine street, East Montreal, Que., will start at once construction of a refining plant on St. Patrick street, here. J. J. Crawford is designing engineer. Machinery is being bought by Machinery Equipment & Supply Co. Ltd., 1092 Panel street, Montreal, Que.

New Trade Publications

EXHAUST FANS—Bulletin No. 166 by the Duriron Co. Inc., Dayton, O., is devoted to its line of exhaust fans and presents illustrations, descriptions, diagrams and data tables.

HEAT TREATING—Ajax Electric Co. Inc., Philadelphia, is distributing a leaflet containing information on artificial furnace atmosphere created from ammonia.

LIGHT SHEARS—United Engineering & Foundry Co., Pittsburgh, in Bulletin E-902 illustrates and describes various types of light shears for cutting steel and iron.

SHEET METAL WORKING— Niagara Machine & Tool Works, Buffalo, in Bulletin No. 76 illustrates and describes its grooving machines and double seamers, hand or power operated.

POLISHING COMPOUNDS—Park Chemical Co., 8074 Military avenue, Detroit, has issued a leaflet covering its new line of polishing and buffing compounds in various grades for many buffing uses.

ENGINEERING ACHIEVEMENTS —No. 7 of its series on this subject has been issued by the Wellman Engineering Co., Cleveland. It treats of mine hoists and unusual materials handling equipment.

WELDING—Lincoln Electric Co., Cleveland, sets forth in its Bulletin No. 3304 its line of arc welding supplies and in Plate 35 a study of arc-welded tier buildings, covering free-end connections and beams to column flanges.

TRAMRAIL—Mechanical distribution of foundry sand is the theme of a current bulletin by the Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O. Halftones and diagrams show application of the tramrail to this problem.

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Up to 430 tons capacity

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Up to 320 tons capacity

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Up to 200 tons capacity

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Car Dumpers
Forging Manipulators
Steam Drop Forge Hammers
Coke Pushers, Levelers and Door Lifters
Coal Pier Equipment
Rolling Mill Machinery
Cement Plant Machinery
Dock Handling Equipment
Coke Oven Equipment

271 of 100 Tons Capacity and over

LADLE AND STANDARD CRANES

59		100 tons
2	WORM DRIVEN Ladle,	100 tons
2		115 tons
6	WORM DRIVEN Ladle,	125 tons
45		125 tons
30		150 tons
3	WORM DRIVEN Ladle,	150 tons
6	WORM DRIVEN Ladle,	160 tons
2	WORM DRIVEN Ladle,	165 tons
4	WORM DRIVEN Ladle,	175 tons
27		175 tons
3	WORM DRIVEN Ladle,	200 tons
4		200 tons
5		225 tons
1		250 tons
3	WORM DRIVEN Ladle,	250 tons
3	WORM DRIVEN Ladle,	275 tons
1		275 tons
1		300 tons
3		430 tons

STRIPPING CRANES

8		100 tons
1		125 tons
21		150 tons
19		200 tons
1	Single Ram,	320 tons

COMBINATION CHARGERS AND STRIPPERS

3		100 tons
1		125 tons
3		150 tons
4		200 tons

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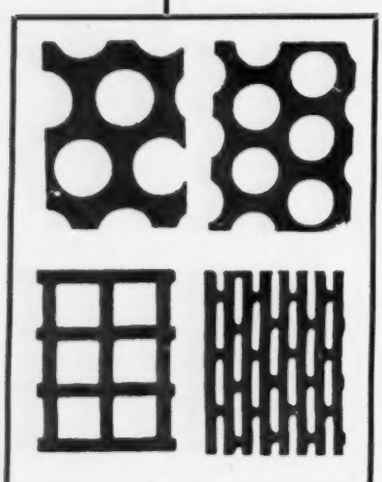

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